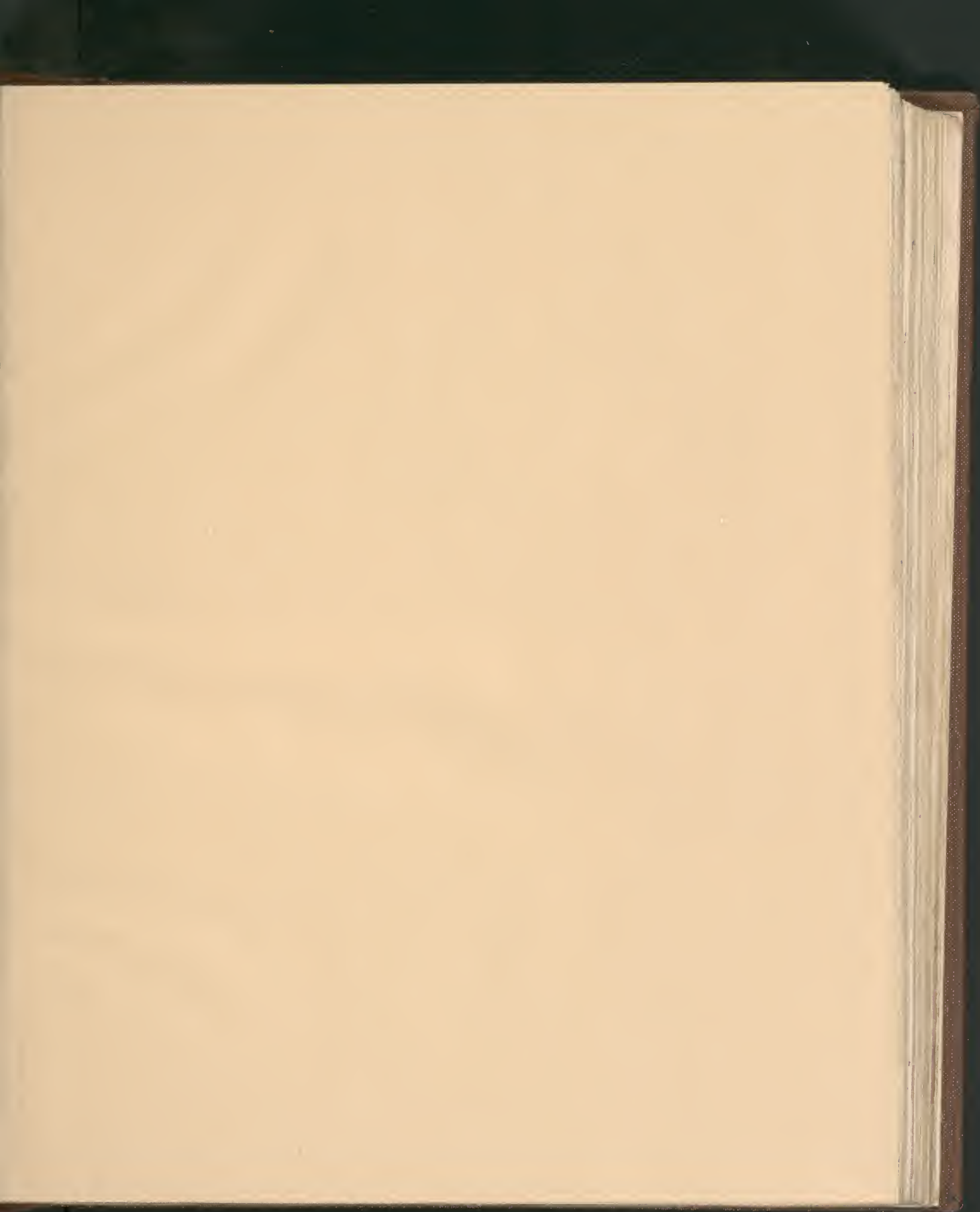
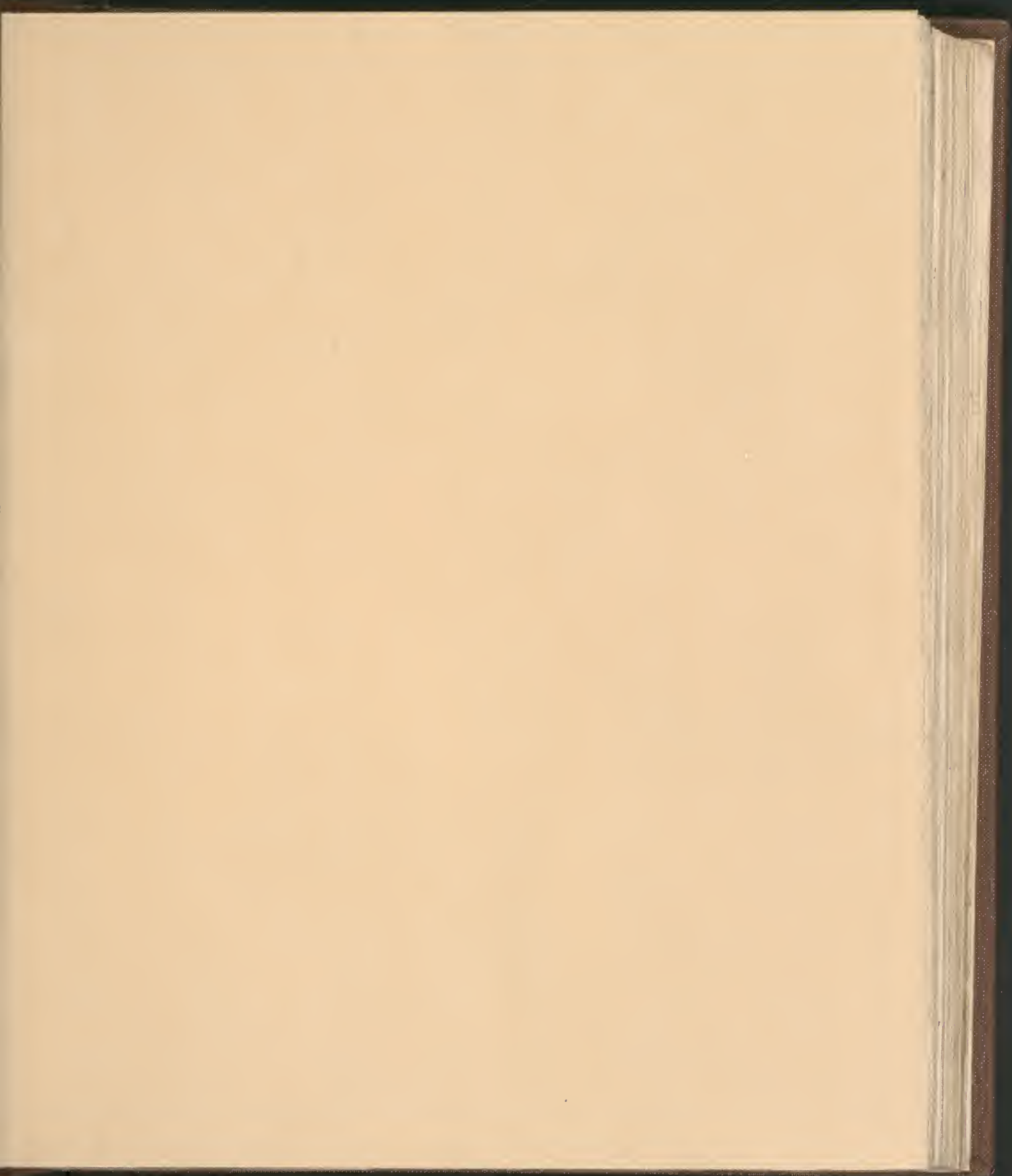


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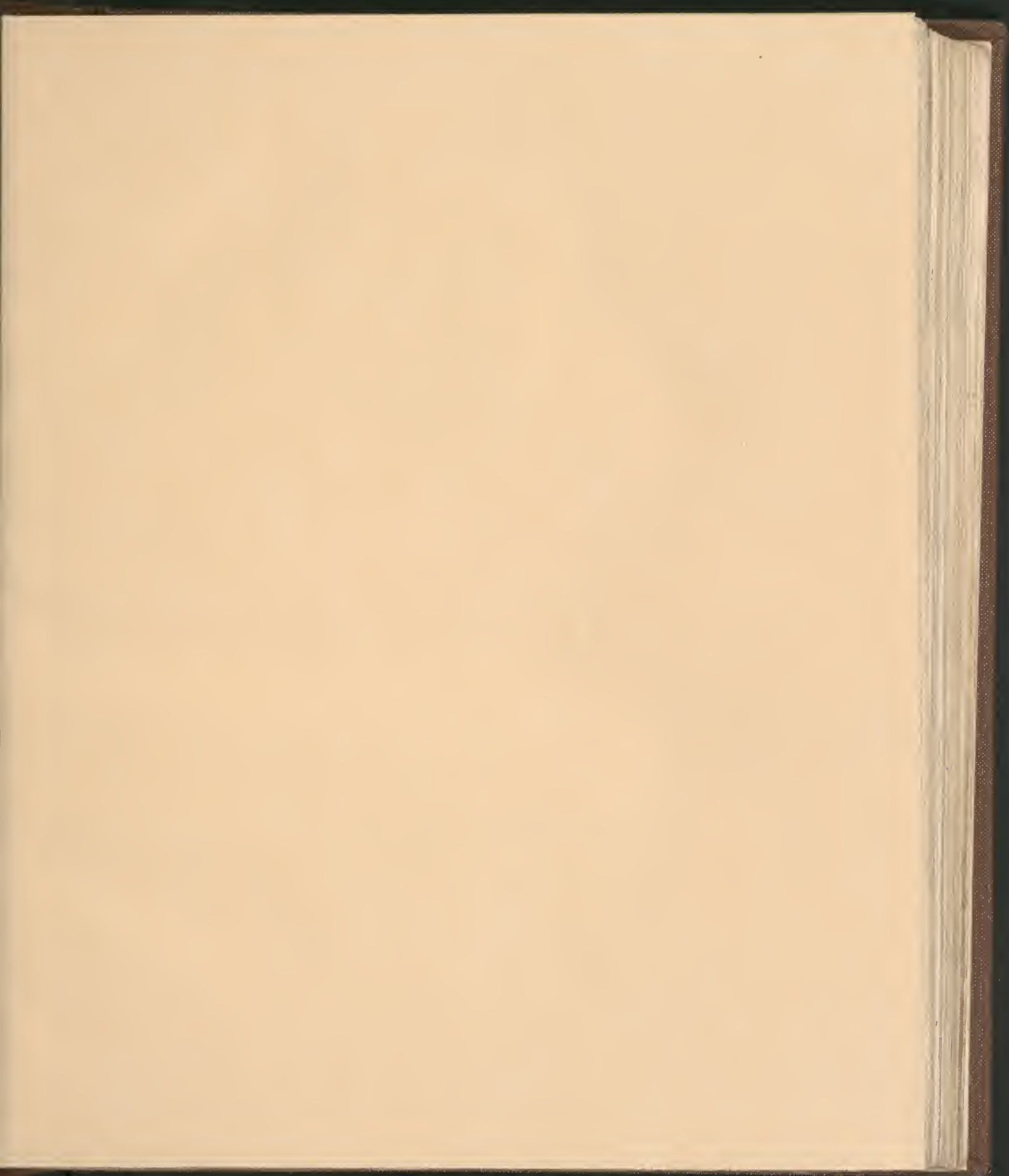
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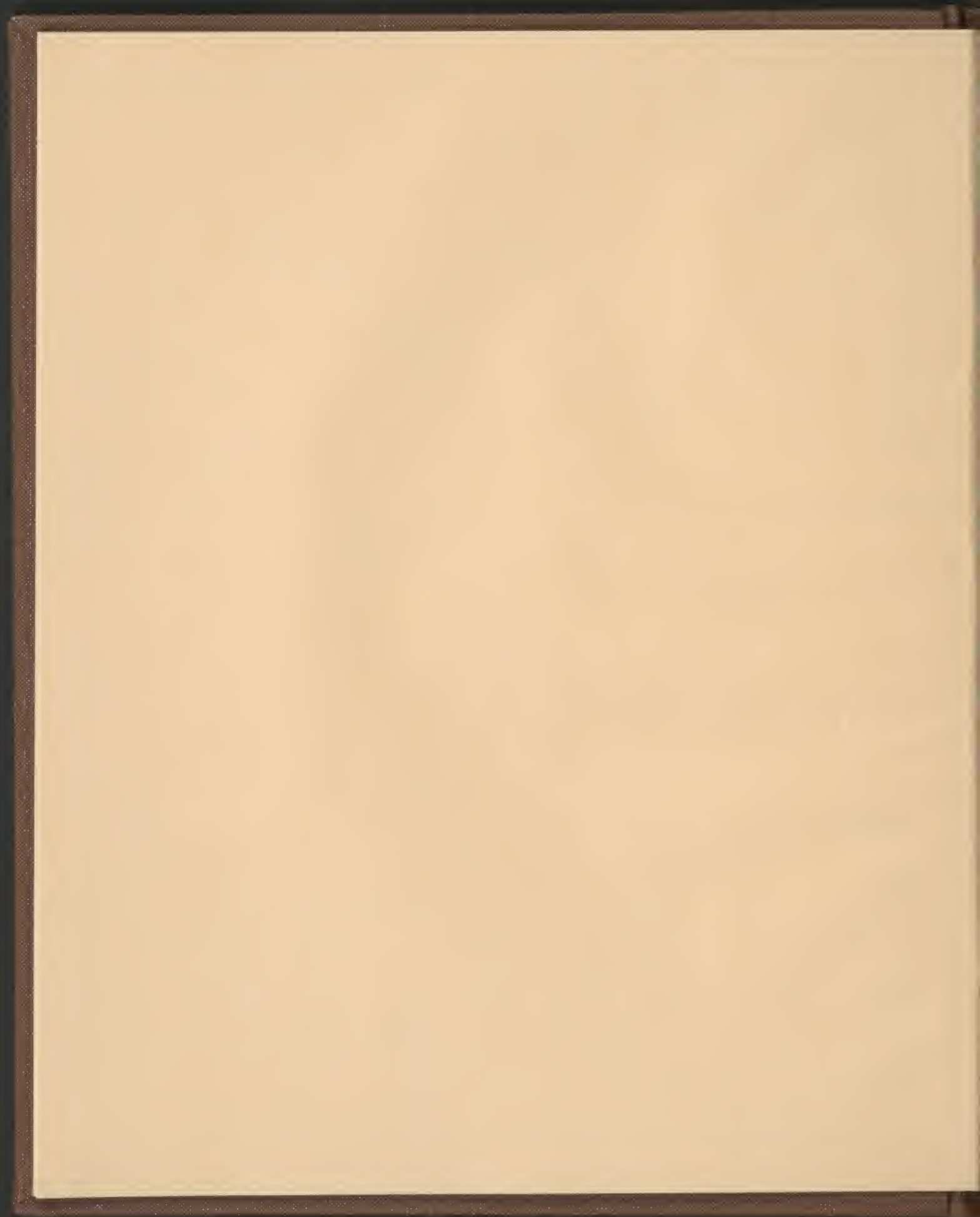


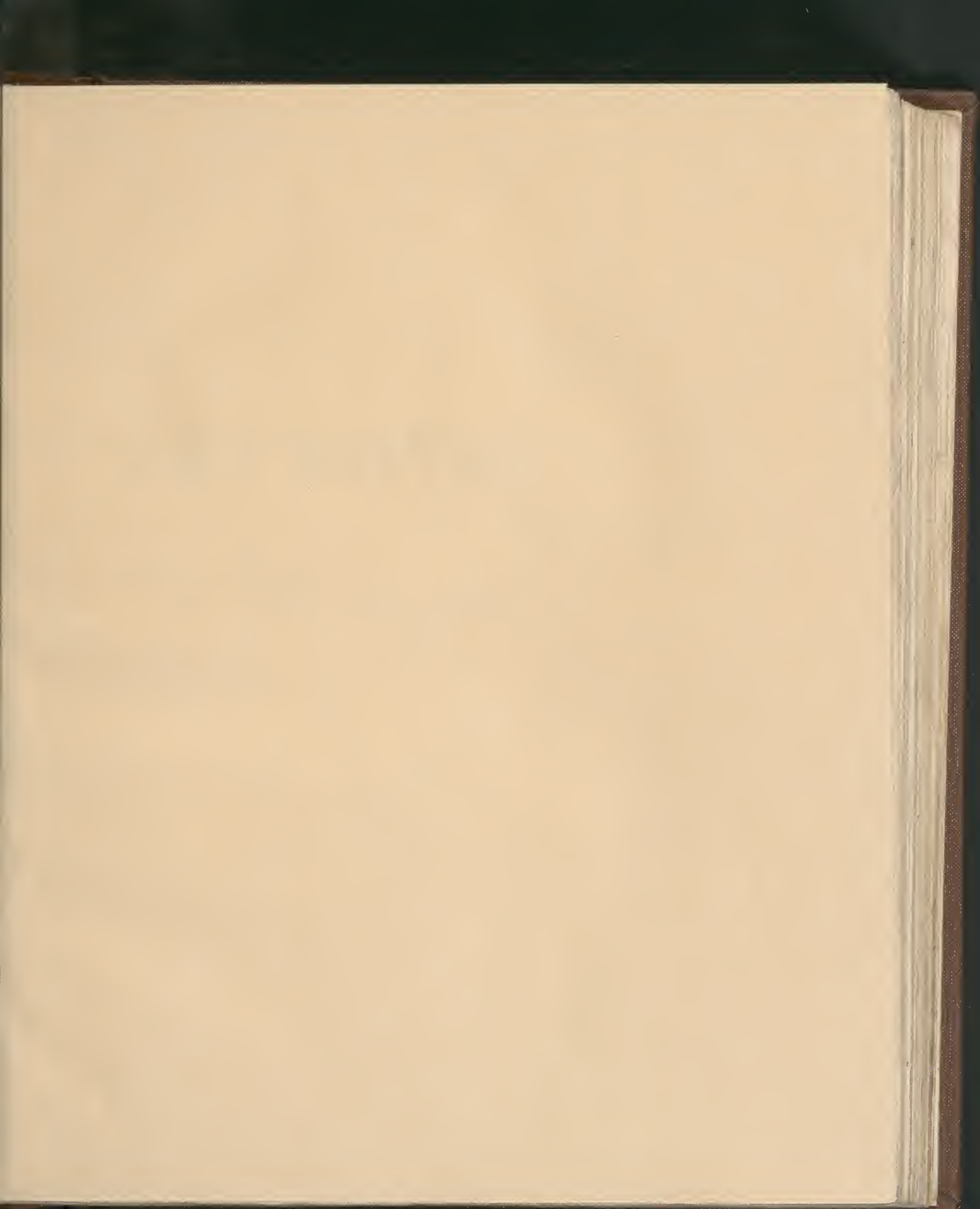


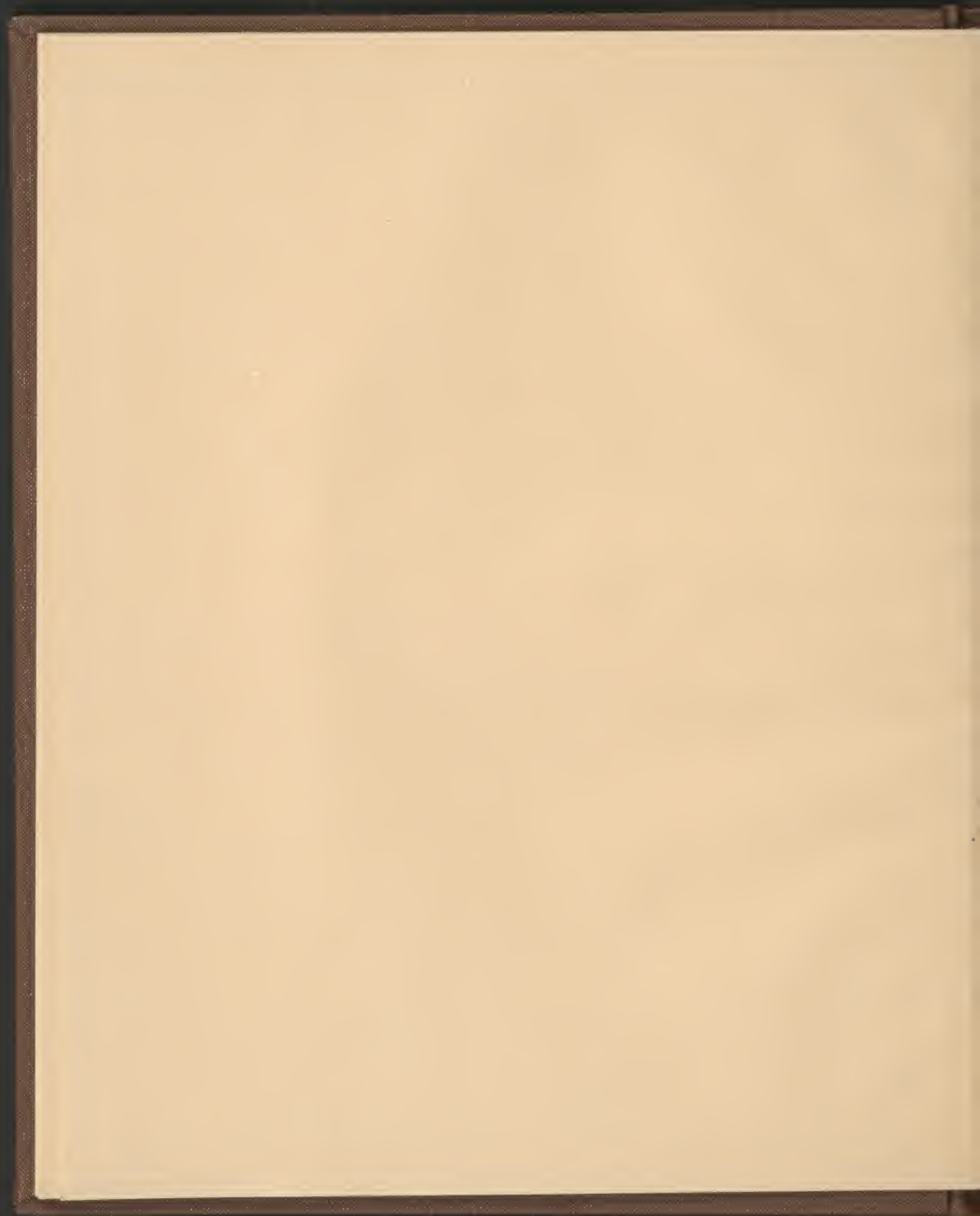












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1 Introductory Lecture on Surgery in general.

Surgery may be said to consist in the application of remedies in external diseases & in the performance of different operations. It is divided into the principles & practice: the principles of surgery are those rules laid down to direct us in our practice; which principles are formed on the observation of nature; and unless they are so formed, are not to be relied on; they must also be founded on the observation of the living subject, on dissection, & on experiments on animals. By attention to the progress of a simple wound, when left to its natural course, we first observe a loss of blood: an inflammation of the part succeeds, & a glue or coagulum exudes, which forms a crust on the surface of the wound; in the second stage there is an additional inflammation, with a discharge of matter; & then granulations of new flesh arise from the bottom of the wound, & heal the sore. So that we find there are only two processes of cure; The one by adhesion, the other by granulations. Therefore if your principles be hypothetical & not founded on nature, they will be like an Iguana fatuus, which deceives by false appearances; & the patient will be led on to destruction—

9 18. The knowledge necessary to be acquired by a Surgeon

The most essential thing in anatomy is to find out the structure must be said; anatomy is of two remarkably useful purposes - in operations by preventing error at the sight of blood & secondly in the power it gives of discriminating accidents.

The parts most essential to be known are: osteology, the joints & their processes, which as being concerned in dislocations you ought to be able to distinguish. The knowledge of the muscles is not so necessary; but those which are the most important are the abdominal. We should be as well acquainted with the situation of the larger arteries, as with the Alphabet - minute dissection of nerves is generally unnecessary; a particular acquaintance ought to be obtained with the eye, the organs of taste & the male organs of generation - Of the brain & viscera a tolerable knowledge may be obtained from demonstration - Take notes of cases, as the memory is fleeting, & the case of one year is forgot by the next.

On constitutional irritation & its varied effects on the body —

There is an universal connexion of one part of the living body with another but more particularly exists so between some than others, which connexion is named sympathy, by which is meant one part of the body being affected in consequence of an injury done at a distance: for in the same way as the mind of one person sympathizes with that of another in distress, so does one part of the body become affected in the state of another. Disease & sympathy is of two kinds: of sensation & action: the first is when one part feels for another — the other when a part becomes diseased in consequence of its connexion with another.

Examples of the first are: an obtuse pain is felt in the loins, from a disease of the testicle: such as hydrocele, inflammation in disease of the hip particularly scrophulous / Pain is felt in the foot the distribution of the sciatic nerve from the knee to the foot. This is a source of much mistake to the practitioner.

A stone in the bladder produces a pain in the extremity of the penis; a disease of the stomach will produce pain in the left shoulder — a disease of the liver most generally at the right. Disease of the mesenteric glands, or irritation in the rectum, will produce an itching at the nose.

Examples of sympathetic action are: disease in the urethra will induce an inflammation in the testicle; & the glands of the groin are often affected with what is called sympathetic bubo, in consequence of a gonorrhoeal inflammation, which

disappears as the inflammation subsides. The hicough also is a constant symptom of a mortification. But the stomach of all the organs of the body, is most frequently affected in this way; if a blow be received on the head, to the injury of the brain, a sure method of detecting such injury vomiting is the most constant symptom; the same effect is produced, when the intestines or testicles are injured, or from the introduction of a tongue, when it is accompanied with faintness - an obtuse blow in any part will also occasion vomiting; but an injury to the stomach will occasion death. A man walking thro' Fleet Street, quarrell'd with a woman; another woman came up, & gave the man a blow in the stomach; he immediately fell, & fell dead - Another man, in good health, at the India house, attempted, in vain, to raise an heavy weight; another interfer'd, & thrust him away with a slight blow on the stomach, of which he immediately died - On examination by Mr. Cooper, Sir Wilson, Blizard & others, the only thing which was found was, a slight inflammation on the right portion of the stomach. Some substances introduced into the stomach, as oysters, muscles, but most frequently Balsam of Copariba, by sympathy with the skin produce an eruption. It is by the irritation corrosive, sublimating & arseric produce on the stomach, & its effects on the skin, that they cure cutaneous diseases. The introduction of a tongue, by its sympathy with the stomach occasions fainting, in many cases; a violent shivering, once or twice in twenty four hours, is produced by a stricture in the trachea - This is best relieved by opium - A rash is often produced on the skin by the salt forcing their way thro' the gums, & this will sometimes continue for months - Costiveness, or palsy are frequently produced from

the same cause, & that in the most healthy children; from which it sometimes happens that they never recover - a suppression of urine is frequently produced by the amputation of a limb; & in the amputation of the female breast, the Practitioner is often obliged to desist, from the sickness which is produced - vegetable poison, or tobacco introduced into the intestines produces syncope. Pressure on the brain will stop the motion of the heart & arteries; but on the pressure going off these organs again are put in motion -

The symptoms which are ^{brought on} ~~excited~~ by the irritation of wounds occasioned by violence is often mistaken for fever; the first effects coming on in about 24 hours after the accident are: pain in the head, back & loins; the tongue white, afterwards brown, & in proportion to the quickness of its becoming brown the violence of the irritation is to be estimated - the mouth is dry, no appetite to food; sometimes tho' seldom, sick; costive, which if the irritation is of long continuance changes to purging; the heart & arteries are affected, the pulse unnaturally hard, tho' not full, from the artery not dilating; when the irritation becomes more violent the pulse becomes irregular, & interrupted, & sometimes there is a sensation of jerking; respiration is quick & laborious; the urine is small in quantity, & high colored; skin dry; the patient becomes restless, & at last delirious; & subaltus tendinum is often present.

A practitioner would be deceived in supposing that these symptoms arise from typhus fever; irritation is the cause, & the violence of these symptoms depends on the ease or difficulty with which the injured part can be restored; & this effort of nature to restore it produces these symptoms; the violence depends also in a great measure on the importance of the part & vice versa; an injury done

done to the intestines kills generally, in the space of twenty four hours. in this case no pulse is to be felt.

The violence which the constitution suffers from a wound, depends much on the irritability of the habit; thus some persons are violently affected from a slight injury, while in others a great violence produces but slight effects: P.^r Sudlow, a man of irritable habit, in getting over an ledge while a shoeking, ran a Thorn into his hand; in a week after, he was seized with a cold jaw. A man, who lived intemperately, was bled by W.^r ~~Samuel~~ ^{Samuel} Demonstrator to the hospital; two days after he was taken ill; on the sixth day the arm was inflamed a considerable way both above, & below the elbow; pus was found out of the wound; the pulse was at 120, with delirium; opium was given inwardly, & also applied to the part, & the pulse was reduced to 110; on the 7.th day he was purged. The delirium was less violent; he took of bread, water, and opium was applied to the part. The following day the pulse was at 120 the lips were covered with a brown sordes, the arm discharged a bloody serum; on the ninth day he died. On dissection the skin round the wound was found mortified, the cellular membrane inflamed & suppurated, but the vein which had been cut was uninjured. An instance of considerable injury, without fatal effects, was seen in the case of a brewers Servant, who was run over by a dray; his elbow joint was opened the bones broken, and the artery separated from the joint; as he would not consent to amputation, the wound was closed, the parts healed, & he recovered without losing the use of the part.

On Inflammation -

It is a fact very well known that the passions of the mind have great influence on diseases of the body; some depress while others exhilarate the powers; when the Patient is in danger it is of the utmost importance that his mind should be kept up, with hope, unless there are very strong & urgent reasons to pursue a contrary method; of which, for your own satisfaction the friends of the Patient should be made acquainted. The passion of grief has a very considerable influence on the body, but more particularly on the liver; for which reason people so affected are usually called hypochondriacs. Anger also is a passion which will produce remarkable effects; & has been known even to occasion immediate death; but of all the effects which the passions of the mind produce those of fear are the most considerable: it quickens the action of the heart & arteries, whilst at the same time they are straightened in their size; the following is an extraordinary instance of the effects of fear:

A Child at School, having been guilty of some little misdemeanor, was put into a dark cellar; the effects of the fear was so great as that the Child became a perfect idiot; it was seized with a fever and died in eight days; on Dissection every part of the body appeared in ^{its} natural state.

1811. 11th Nov. a singular case of the effects of heat of
a gentleman who died from being held that he was there in his
bedroom.

On Inflammation

In external inflammation the part inflamed is redder than
natural; there is also some degree of swelling, ~~heat~~ ^{increased sensibility}, or
increased degree of heat, which however some have disputed
more sensible than is usual. The part becomes redder from
an increased force of the arterial action, by which means the
vessels become increased in size; & those vessels which in an
healthy state convey only serum, by this increased action, & conse-
quent enlargement convey the red globules, as in the case of
inflammation of the tunica conjunctiva oculi. The tumour
is occasioned by the effusion of fluid or coagulum into the
cellular membrane. Upon dissection this membrane is found
to be dropical; which fluid will coagulate on exposure
to air; in the centre of this fluid is coagulable lymph.

Increase of sensibility arises from an increase of
secretion in the small vessels, when the fibrillae of the ex-
posed nerves are stretched. It is very improper to operate on an
inflamed part, as the parts are so very sensible; another rea-
son is that those inflamed parts will not readily unite by the
first intention, but on the contrary will suppurate - for example,
if you inject the hydropile when it is uninflamed it will heal
by the adhesive process; but when it is inflamed an injection
will

well cause pus to be produced, & sometimes in itself.

The heat of the part in external inflammation is increased; on the contrary in internal inflammation it is lessened.

The effects of inflammation

are four; first it produces adhesion; by which is understood, that a quantity of glue is poured out by the effects of the inflammation, which joins the parts, & becomes organized - the second effect of inflammation is suppuration; where matter is poured out into a cavity from the absorbers, having taken up the surrounding parts, by which process is formed a cyst which contains the pus - thirdly it terminates by ulceration; where the substance is taken up by the action of the absorbent vessels - the fourth method is by gangrene; it is occasioned by the circulation of the blood being prevented by the

The cohesion of parts or by the coagulation in them.

The symptoms which indicate each particular stage of inflammation are: The adhesive process is accompanied with the four before mentioned inflammatory symptoms, in a mild degree - The suppurative process is accompanied with a feeling of lancinating pain, with a redness of skin over the tumour; for example, in a bubo, as soon as a bluish is spread over the skin, matter is to be found, & not before; the tumour has a prominent point, & the skin is very considerably stretched and polished; & finally a fluctuation is felt in the tumour; it frequently bursts of itself, but if it does not, the skin appears thick & dense, it may be opened, at the place where it points, or in its most dependant part.

Slceration, the next method of termination which we have enumerated, is attended with a peculiar gnawing pain - Mortification is preceded by a very violent degree of pain; at first the skin is extremely red, vesications then take place & the part quickly becomes insensible; and within a few hours after this has taken place, a circumscribed line is seen which separates the mortified from the healthy parts.

The effects which inflammation has on the constitution is very similar to that produced by irritation; the pulse is hard and narrow, & generally quicker than in the natural state; it is often

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the irregular & sometimes intermittent which last however is not always to be thought a symptom of danger; your prognosis therefore should be delivered with great caution, particularly when the patient is old. The symptoms of inflammation are very different in different parts of the body; in inflammation of all the abdominal viscera the pulse is small, feels like a tight thread under the finger; in this case the surgeon should not fear to bleed, for they will rise under the bleeding. In inflammation of the lungs & of the heart the pulse is softer, stronger, and less laboring after bleeding than before, being then slow & full; in inflammation of the heart the pulse feels like a broad wire. In inflammation of the tendons the pulse is small & frequent - in inflammation of the brain it is nearly in its natural state. When the muscles are inflamed it is a frequent circumstance that spasms occur, as in the case in fractures, ~~for~~ often occurring a few days after the accident. When there is an inflammation in a tendon it extends thro' the whole length of that ~~that~~ tendon; and if the inflammation commences in the finger it usually proceeds up thro' the arm, forming in its course, several abscesses; when the inflammation is in the fascia, the skin appears red, as in Erysipelous. The usual consequence of an inflammation of the arteries is Death; when de Mo occurs in consequence of an amputation, it commonly arises from inflammation in the arteries. —

Let. 4 Inflammation of the vein resembles that of arteries, but
17 it is not so readily continued thro' sin. as thro' arteries;
when the inflammation arrives at the valves of the veins, they
are closed by the adhesive process, which puts a stop to the
~~inflammation~~ ^{inflammation}. In consequence of inflammation an abscess
is sometimes formed in a vein, & that bursting the pus is carried
in the course of the circulation, or to the heart: a Gentleman had
an abscess in one of the glands of the neck; the tumour on a sud-
den subsided, & a shivering came on; & it was supposed that
another abscess was seated deeper, into which the external one
had burst; after a short time he died. On examination the
gland was discovered to have opened into the jugular: &
^{the pus}
~~the pus~~ circulating with the blood, had produced these rigors.

Sometimes it will happen that a vein will be inflamed from
bleeding; in this case a red cord extends along the
vein both above and below the place where the punc-
ture was made; and when the matter is formed it will
not discharge itself externally - Inflammation of the
absorbents is known by red lines extending under the skin,
and noticed where the valves are placed; abscess forms generally
in the glands of the absorbents. The large trunks of the nerves
are rarely inflamed; tho' sometimes a disease of the bone or joint
will occasion it; as for instance, a carious, or wounded hip bone
will occasion inflammation in the sciatic nerve; & a most
severe pain will be extended to the foot; in general, an inflam-

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action on the nerves will be severely felt in their remotest extremities; and in general, when the glands become inflamed they cease to secrete. Many other sorts of inflammation are spoken off by Surgeons as rheumatism & many others; inflammation of gout, cancer, scrophula, or lues venerea, are inflammations *seui generis*; & when applied to other parts have a power of inducing similar actions in those parts. Inflammation is of two sorts, & may very properly be called inflammation of health, & disease; the first are frequently of advantage to the body; the second show that the constitution is bad; no accident or operation can be well without inflammation.

The predisposing cause of inflammation

Is debility; but if this debility be accompanied with irritation the inflammation will consequently be greater. That debility which is the effect of previous excitement is the most predisposing - as in cases of drunkenness; for example one man meets with an accident, is killed until he is very low, & does well; another man, who has been accustomed to drink large quantities of spiritous liquors, without making use of a proper quantity of food, meets with an accident, & generally dies in consequence; in this case the inflammation is very great; & the danger is for the most part to be estimated by this. If a man has undergone a mercurial course, & any part, as the bones of the nose for instance are sloughing off, inflammation will necessarily be present; if mercury be con-

14. tence to be exhibited. The inflammation will increase, &
15. Patient dies; but if leeches be applied to the part, & the
leech, & other tonics, administered. The parts will separate,
without any bad symptoms. It is a common fact that persons
recovering from typhus fever will have the skin stripped off the
parts on which they generally lay; if can be not taken these wounds will
mortify, & the patients die; wounds made by blisters also are known
to inflame, mortify, & occasion the death of the Patient, & for this rea-
son the London Practitioners are cautious in applying blisters in
typhus & some other diseases as the part is liable to a mortifica-
tion is the consequence. Parts which are furthest from the heart,
and consequently are weakest, are more liable to inflame: thus
in the lower extremities there are more ulcers than in the upper;
and when a legion inflames, the inflammation is very great.

The exciting cause of inflammation.

Whatever puts the part in an unnatural state; for example
if a man has any part of his body exposed first to an extraordi-
nary degree of heat, & then to a great degree of cold, an inflam-
mation will be the consequence; mechanical injuries also,
or the introduction of extraneous substances into the body, will
cause inflammation.

The proximate cause.

It is useless here to speak of the different theories by which the
proximate cause of Inflammation has been attempted to be ex-
plained: Boerhaave supposed that it was occasioned by a humor
or viscid in the blood obstructing the circulation; but as it is

now well known that the blood is broken down in inflammation,
the theory which was built on it of course must be false.

It cannot, as Cullen supposed, proceed from spasm of the vessels
as it is certain that there exists a greater circulation in the
parts than before. It appears rather to proceed from a pas-
sive state of the vessels of the inflamed part, or a more active
active state than usual of those surrounding them; debility
is only a distant effect, instead of being the cause, unless un-
der the circumstances before stated; for when an inflamma-
tion succeeds a fever, it is from the general debility of the
system; the vessels of the inflamed part, as well as those which
supply the inflamed part, become much enlarged - as is the
case also at last, with the whole limb; & when the vessels have
conveyed more blood than they have been before accustomed to
they become fatigued from the distension. If it proceeded ori-
ginally from debility, why would not Zinicum vitriolatum,
and other astringents, be proper? but on the contrary we find
that leeches, & cooling & antiphlogistic remedies are attended
with the greatest success - but when the inflammation has
existed long, & the parts are become debilitated then, astringents

(become proper.
Lecture 5th. On the treatment of inflammation.

When the inflammation proceeds from accident, evacuation
should not be too freely made, & the strength reduced too low, as
this inflammation is absolutely necessary to the healing

16 proceeds; & where the reduction of the constitution has been carried too far, a locked jaw, or death have been the consequence.

The treatment of inflammation is either general, or local; in the first of these, three principal means are to be used; bleeding, evacuating the intestines, & inducing perspiration. When, in common inflammation the pulse is hard, or in inflammation of the intestines when it is small & threadlike; or when any of the vital organs are inflamed, bleeding is absolutely necessary; & the more quickly it is evacuated, the more effectual it is likely to be found; but when the opening is very large it will sometimes happen that the wound will not heal; in such a case the good effect of the quick evacuation is counterbalanced by the bad - in general a small quantity of blood drawn off speedily has the best effect - much better than when large quantity is drawn at once; but there are many cases of inflammation in some of the vital organs, in which it will be necessary, not only to draw off a large quantity, but even to repeat it in the same quantity; it is to be lamented that Practitioners are not more in the habit of bleeding in such circumstances. Topical bleedings are of the greatest service; as in the case of inflammation of the brain, or its membranes, where bleeding from the temporal artery will produce much better effects, than larger bleedings from the arm. When a general debility accompanies inflammation three or four ounces of blood will be enough to draw at once, & this should

be repeated, as is found necessary.

The second plan of general treatment is by purging; it produces good effects in two ways: first by the mere act of evacuating the Intestines, & secondly by exciting irritation, & producing a determination of blood to the intestines, & so relieving the inflamed parts; nor will this way of relieving seem surprising when we consider the size & importance of the alimentary canal; that it is twenty five, or thirty feet in length, & three inches in diameter generally; that a great secretion is carried on by it, & that it is very vascular. Jaline purges of *magnesia vitriolata*, or *Oleum Ricini* are very proper cathartics, or if it be required to irritate as well as purge, drastic purges, such as Calomel united with Jalap or Scammony, are the most proper. All sorts of inflammation in Children may be relieved by purging with castor oil, & if they are at the same time in a state of ^{general} weakness, wine or porter may be allowed them; the calomel should not be given in less doses than two or three grains, & repeated once in four or five nights.

Inflammation is never known to go on while a perspiration exists in the body; perspiration acts by determining the blood to the surface; the best methods of inducing a perspiration are by the exhibition of Antimonials, & the Pulvis Ipecacuanhae Comp. by bathing the feet or the whole body in warm water; nausea should be brought on by giving small doses of the tartarized antimony in those cases in which the inflammation attacks such parts as would

soon destroy life; this is the case particularly in scroph-
 ulous calomel should be given, & leeches first to the face
 blisters to the throat; but the principal dependence should
 be on the Vinum Antimonii Tartaris. given in small doses
 as will excite nausea; & the heart & arteries will have
 a faint action during the time the body is under its influence.
 If the inflammation is accompanied with irritation, & a
 quick state of the pulse, no evacuations should be attempted,
 but opium should be given; the best form in which it can
 be exhibited in these cases is Pulv. Ipecacuan Comp. - the
 Antimonial Wine also may sometimes be given.

If the inflammation be indolent, or as it is called chronic
 & the patient in a state of debility, the best remedies will
 be Bark in large, & Calomel in small doses; Thus, when
 the glands in the groin are in a state of enlargement, with-
 out active inflammation, & not occasioned by the venereal
 disease, the soap plaster applied to the parts, & Bark
 & Calomel given as before directed, will soon complete a cure.

The second method of curing inflammation is by local
 applications. The first of these is cold; by evaporation the
 size of the vessels is diminished, & less blood being thus pour-
 ed out, they become strengthened. But to produce a good effect
 it is necessary that the cold should be regularly applied;
 for if it be omitted & the part left to get dry, a considerable
 degree of heat is produced & the inflammation is increased.

The best Lotion in these cases is the *Liquor Lithargyri* rect:
Composed cum Spiritu Vini - in the proportion of about 39 of the
latter to 41 of the former, it not only acts on the vessels by eva-
poration & inducing cold, while it encloses their discharges, but
it affects also the nervous system very considerably, & induces
so much so that if it be applied for a long time it will often
paralyse the part by its sedative action. *Liquor Ammoniac* is
also frequently used; but its use should be confined only to dis-
sected inflammation; it produces its good effects by irritating
the skin, & by that means drawing off the blood from the diseased
parts; - as for instance when the scrotum is inflamed the *Liquor*
Lithargyri rect: is the most proper, but when the inflammation
is in the testicle the *Liquor Ammoniac* rectified is of service.
Another method is to unite heat with moisture: as in tor-
tations & frictions; they relieve by evacuating the exhalant
vessels & inducing perspiration; oil-silk & soap liniments are
also used with the same intention, with success; & if these
are not sufficient leeches should be applied; & in cases
of great difficulty external irritating stimulants may be
used; such as *Emplastrum Ammoniac*:
Emplastrum Lithargyri cum *Hydragyrio*, or the
Emp: Lithargyri Comp - of these the first is the best; blisters act
violently, & on that account should be considered only as secondary -
but an application which has been of great service is *Si Antim: Tart:*
in 31 Linim: *Ammoniac*: or, which is a better form, *Si Antim: Tartar:*
in 34 of Lard; a small quantity rubbed on the part for about ten
minutes at a time will often bring out eruptions resembling

20 Small pox. Vinegar poultice is also of great service, with the same view; in inflammation of the joints, brings out an eruption in the space of three days; which prevents its being continued - the Saturnine poultice should then be substituted for it. The position of the part is also of considerable importance; as in inflammation of the testicle, the inflammation will not cease until the part is suspended; in inflammation also of the lower limbs, it is absolutely necessary that the patient should lie; a state of rest also is very necessary in the cure of inflammation; this is seen even in the face, where the inflammation will only subside when the body is at rest. When a tumour is the consequence of inflammation its removal may be effected by rubbing it with the Unguentum Camphoratum; or if that fails of success a blister; or again electricity. ^{by the use of}

Lecture 6

Of Adhesive Inflammation. ^{Art. 31}

The adhesive inflammation separates ^{the blood} into its three constituent parts, and the coagulable lymph is poured out; the symptoms which attend adhesive inflammation - namely heat, pain & tumour, ^{are} are similar to those which are the first symptoms of inflammation; ~~except that which is not seen in adhesive inflammation.~~ The constitutional symptoms depend on the importance of the part diseased; but ^{they} are never so violent as in the first inflammation: on examination it has the appearance of a yellow jelly like

substance effused into the cellular membrane: but in the abdomen or chest it is drawn out into plates & whitish threads; this process is seen peculiarly distinct in the testis, encysted tumour, or hydraula. Some parts are more disposed to adhere than others; & those are the naturally shut cavities; as in the Pleura where the adhesive inflammation takes place more frequently than in any other cavity; it is frequently seen also in the pericardium, peritoneum of the abdomen, ~~parietal & visceral~~ ^{the parts of the peritoneum}, & tunica vaginalis testis; these cavities very seldom suppurate; & this is wisely ordered by nature, for if they did so death would generally be the consequence. When the mouths of the vessels are very minute the matter effused is coagulable lymph; but when they are larger the matter so poured out is pus; the coagulable lymph being effused the mouths of the arteries become enlarged & stretch into the part, & it becomes vascular. In inflammation of the coats of veins or arteries also coagulable lymph is effused, the vasa vasorum enlarge & it is soon vascular. If the effusion be in a large quantity it is never found to become organized, tho' when it is in a small quantity it is; in fact, when a small quantity of ^{coagulable lymph} blood is poured out it crystallizes, in a utricular form, & it is then only that it can become vascular.

The use of the adhesive in inflammation is to restore parts, & to close wounds; & no operation could

could be performed, & the body could recover from no accident without this process. It was formerly said, that there were three methods of cure in wounds; adhesion by means of the coagulated blood; by adhesion, & the first opinion is it is called; or by granulation; this however is now known to be false, & no wound can be united by blood alone; inflammation must take place, by which coagulable lymph is thrown out, which unites the divided parts. Six or eight days should elapse before the stump of an amputated limb is opened; otherwise the adhesion will be destroy'd, & suppuration will ensue; if pain or swelling be present the outer bandage should be removed, but the adhesive plaster should be undisturb'd; & if there be a fluid matter retained by the bandage, a small slit with a scissor or knife ~~will~~ only should be made to let it escape. In a divided artery also, ^{unless} ~~unless~~ proops glued the parts together, hemorrhage could not be stopp'd - in short, on this process depends every art of the surgeon.

It often happens that in an inflammation of a cavity, adhesion will take place, forming a barrier which prevents the inflammation from proceeding - this is frequently observ'd in the colon, where the lower part of it is inflamed, but the inflammation is prevented by its attachment to the peritonæum from extending to the upper part; in the cavity

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of the chest too, adhesion will surround & prevent the extravasation of pus into the cavity; it also forms a cyst round an extraneous substance, as a bale, shot &c & thus retains it for years. In the cure of hydrocele also, it is by this that the parts are united.

Of suppurative inflammation.

If inflammation does not terminate in the effusion of coagulable lymph, pus is discharged in its stead; the formation of pus requires a constitutional effort which is known by rigor followed by increased heat; the rigors depend on the importance of the part inflamed, & sometimes they are extremely violent, & recur often; the parts undergo a sudden change; darting pains, resembling the pricking of needles, is felt in the part, & also a pulsating sensation & a redness of the skin, which is over the part; but this depends on the violence of the inflammation; there is a prominence on one part of the tumour, under which a fluctuation is felt, & the cuticle separates; the pus is surrounded by a wall of coagulable lymph, which, as well as the fluctuation, should be felt for - but if the constitution be not good, the cellular membrane will sometimes be so loose, that no lymph being effused, & consequently, there being no walls to form a cyst, the matter passes thro' the cellular membrane, without being confined to one part.

Some parts of the body are more disposed to suppurate than others; this is more particularly the case in those which secrete mucus; & here the adhesive process does not precede the suppurative. If there be inflammation in the urethra (as in gonorrhoea for instance) or vagina, trachea or laryngeal sac, no coagulable lymph is poured out; & in this we must admire the wise provision of nature, as adhesion in these passages would eventually occasion death; In croup the inflammation which is of a specific nature - proceeds immediately to adhesion; a similar disease is sometimes seen in horses, & is called the raura.

Lecture 7.

On suppuration

When the lips of a wounded surface do not adhere, suppuration takes place. It was formerly thought that pus was produced by a solution of the solid parts of the body; but that this is not so, has been proved by placing pieces of flesh in ulcers where they have lain for a day or two immersed in pus, without touching the sides of the ulcer, when they might be removed without losing any thing of their substance; when matter is formed in the Pleura, it becomes thickened.

Pus is produced by secretion from the mouths of arteries, in the same manner as other fluids in the body are by glands; & the only change it undergoes after its secretion, is that it becomes

more more of age. This is very common.

The case

To produce absorption of parts, by making suppurate & then;
and to cover the surface of granulations, & prevent them from
being dried & hurt by the air; if the ulcerated parts be an-
dry, new vessels would be prevented from shooting & conse-
quently the parts would not heal; but in the present case,
when the ulcer is exposed, the pus becomes forming a dry
scale, under which fluid pus still remains. On examining
pus with a microscope it is found to consist of serum in
which globules float, these globules resembling those of blood
in every thing but color; there is but a small portion of organizable
lymph contained in it. It was thought a desirable object to
have some fixed distinction between pus & mucus; that the phy-
sician might be certain which was coughed up, & as it was
thought, of course, might ascertain the state of the patient's
lungs; it was found by chemical experiment that pus is
coagulable by mineral of ammonia, which is not the case
with mucus, & thus a distinction was made between them;
this however is of no use in practice, as all matter brought
up by coughing does not proceed from the lungs, but on the
other hand, ~~that~~ it may come from the trachea, while the
lungs are not affected.

But if the matter be not completely formed, or consist only of serum, without the globules, it will be ichorous & produce inflammation whenever it chances to touch. If a carious bone be in the wound, ichorous pus is secreted, & the same happens in some fevers, indicating a diseased state of the ~~resorption~~ constitution; & if the irritating cause be of a specific nature, the matter poured out will be of the same specific nature; as is seen in the venereal, or small pox hoisors. If matter has been secreted in a part, for a considerable length of time, a superabundant quantity of blood is formed in the body for that purpose; if then, this secretion of pus be prevented, the superabundant quantity of blood is not carried off, & the head & chest become affected; it is necessary therefore to give purges both before it is attempted to stop the formation of pus, & also after it is accomplished; to obviate the bad effects of the great quantity of the blood remaining in the body.

Ulceration

The absorption of whole parts of the body, & is a process distinct from natural absorption, by the latter taking up only small parts from the interstices; it is frequently accompanied with the formation of matter tho' this is not absolutely

- necessary to it; This is part in fact, need ~~not~~ observable
 in aneurism; if aneurism be in the aorta, near the ribs &
 depending on them, the bone will be absorbed tho' no matter
 is formed; most frequently however, ulceration is accom-
 -panied with a secretion of matter; & the appearance of
 the part is, as if it was worm-eaten; - when this is in the bone
 it is called caries; the process is founded on inflamma-
 -tion, & the violence of the inflammation alone will cause
 it. tho' more frequently, it is assisted by pressure.

Ulceration usually tends to the surface of the body; &
 this is the case where the internal covering, or that between
 the abscess, & the cavity of the Thorax, for instance, is but thin,
 while a thick & strong layer of muscles covers it externally;
 it occurs even when an abscess is formed under the sternum,
 with no other substance between it & the cavity of the Thorax
 but the pleura; part of the sternum will be absorbed & the matter
 will pass thro' the opening; when matter is formed between the
 dura mater & the skull, it seldom happens that ~~that~~ it does not
 pass thro' the skull, & discharge itself externally; when pus
 is formed between the peritoneum & cavity of the abdomen; or
 in bones, as the tibia, it passes out; & it is peculiarly remarkable
 in the tibia, where it usually is discharged thro' the skin;
 This property, unaccountable as it seems at first sight ap-
 -pears to depend entirely on the structure of the parts; the

effect of inflammation in the bone is an inflammation in
 the muscles; they become coated with coagulable lymph
 but that which has the least yields the soonest; this is peculiar
 to be seen in inflammation of the pleura & peritoneum; they
 adhere & thicken, & the pus is discharged externally because
 there is not so great an alteration in the parts situated
 externally as there is in the parts ~~within~~ between the cavity
 of the Thorax or abdomen, & the abscess; & it should also be
 considered that there is comparatively little absorption
 in the pleura. Ulceration proceeds quickest in parts
 which have been but lately formed, as in cicatrices; thus
 if ulceration is produced in a limb which has before been in
 a similar state, but which has cicatrized, this cicatrix is
 absorbed, & an ulcer is again formed; the same occurs
 also in the callus formed around the broken extremities
 of bones, to unite them; as was peculiarly experienced by
 the sailors who went with Lord Anson round the world
 on their being seized with sea scurvy. The progress of
 ulceration is found to be quicker in those parts in which
 the circulating action is weaker, than others; & for this rea-
 son more ulcers are seen in the lower extremities than
 in other parts. Ulcerations are frequently extremely rapid;
 & parts are sometimes destroyed in four or five days, which
 as many weeks, or even months, can with difficulty restore.

The process of ulceration is of one description

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III

In the animal economy, extraneous bodies would remain in the body without being discharged without it; it is by this that a ligature is removed from the extremity of an artery to which it had been applied for the purpose of, stopping a vessel to the further discharge of blood; by the pressure which the ligature causes, inflammation is produced & ulceration follows, by which the ligature is removed; but this process is more slow in arteries than in other parts; by which means the parts have sufficient time to adhere. If the ligature includes any other substance beside the artery, when these substances have ulcerated, the ligature becomes loose, & the artery itself does not ulcerate - Nelson was a peculiar instance of this; the ligature remained in his stump without separating, for six months; in such cases another ligature should be applied, which if necessary, should be made tighter every day; - sometimes a nerve is included in the ligature, when the artery does not ulcerate; here, it is very sensible & produces much uneasiness, before the tightening the ligature causes it to separate.

Abcess

may be defined to be, a collection of matter, contained in a cyst; this cyst is formed by an effusion of coagulable lymph, in consequence of preceding inflammation; & by this cyst it is
or find

confined to one part. In cases where it is doubtful
 whether there be an abscess or not, the fingers should gradually
 be passed with some pressure over the parts: if it be an
 abscess an hard ^{wall} will be felt surrounding a flu-
 id containing fluid. This is formed in the following man-
 -ner: The cellular membrane becomes inflamed, & coagu-
 -lable lymph is secreted from the mouths of arteries; as
 the inflammation increases a quantity of pus is depo-
 -sited in one of the cells in the cellular membrane; more
 being constantly bringing to this, & to many of the surroun-
 -ding cells, & pressing on the contiguous soft parts, they
~~are at last~~ become gradually absorbed, & the matter
 at last reaches the skin & is discharged. When pus begins
 to form shivering is felt, & the pain changes from an obtuse
 to a lancinating sensation; the tumour from being dif-
 -fused becomes prominent; the cuticle separates, &
 under it sometimes ulceration begins. An abscess usually
 is not dangerous but becomes so from particular circum-
 -stances as situation; if it be situated so as to prevent
 the action of parts necessary to life; as behind the phre-
 -nx: a Woman was brought into Guy's hospital, who
 thought she had injured her throat by swallowing
 a bone; she complained of great difficulty of breathing &

in a short time died; on examination a large abscess was found to be situated between the trachea & spine which by its pressure prevented respiration. Another case of a similar nature occurred shortly after, in a friend of Dr. Rutington, the cyst was opened by a small trocar, which gave immediate relief, & the Patient recovered. Abscess will occur in perineo, causing suppuration of urine, & eventually death, unless it be opened - when thus situated they will sometimes burst when a catheter is passed to draw off the water.

They sometimes become dangerous on account of their size; & when situated under the fascia of the thigh will extend from one side of it to the other & the Patient dies from exhaustion, the same will also occur in the back. When matter is formed a vital organ death is the usual consequence: if it be in the brain tho' it finds an outlet thro' the cranium, the patient will die; & the same will be the consequence of an abscess in the heart; when in the lungs or liver, the Patient may recover, tho' the chances are against him.

Treatment

Supposing the constitution strong, & the general health good, fomentations & poultices will be proper; as it is well known that heat united with moisture powerfully increases absorption. If it be indolent in its progress, it may be

hastened by applying a poultice of bread with salt
 & water; in the proportion of a table spoonful of salt to
 from a pint to a pint & half of water, as the skin is more
 or less irritable; a poultice of stale beer grounds, or of
 vinegar will also be of great service; or a stimulating
 plaster, as Emp: Lithargyri Comp: Opium to ease the
 pain, with bark & wine, are very proper if ammonia be
 joined with the bark, its good effects will be more apparent.
 When pus is fully formed, & does not break it should be opened
 with a lancet; caustic has been much recommended & in
 some cases is of considerable use, but it is too tedious & in
 general the patients are averse to it. If the matter does
 not flow freely thro' the opening that has been made,
 a day or two after, the probe may be dipped in nitric acid,
 & the sides of the opening touched ^{with} it. which will have
 the same effect as caustic would have. The opening which
 is made should be small; for a large one has been known
 to occasion bad symptoms, & even death; when the abscess
 is large & it can be conveniently done, incision will be
 found to be attended with the best effects.

When matter is formed under the fascia of the thigh, it
 will spread, without opening, from one side to the other;
 here, the opening should be made in the middle & both
 sides bound tight with a roller; which ^{will} ~~cause~~ cause the

part & where the air large cavity is made with
small; it however the discharge is profuse & the in-
-stitution has it should be treated as a dressing.

When an abscess is formed in a bone, or in a part of
great importance to life the opening should be made
early, which would prevent many bad symptoms which
otherwise must happen.

Secondary Inflammation

After an abscess has been opened, or has burst, inflammation
comes on; this is absolutely necessary to the cure, & is the
same as the adhesive inflammation before spoken of.

Some have supposed that this inflammation is not produced
by nature, but by exposing the cavity of the abscess to the air;
but it is well known that tho' the external air has never
entered the cavity the inflammation has still been present.

The symptoms of the adhesive inflammation are: rigors
pain in the part, & in bones; three or four days after the
abscess has been opened coagulable lymph is poured out
on the internal surface; which becomes organized & gra-
-nulations spring up from the newly formed vessels. - If the
sides of the cavity be pressed together, they adhere, but if not
the granulations on the sides, meet & fill it up.

Mr. Hunter was the first who taught that the presence
of air does not produce this, or any other inflammation; &
it

it is also, generally attended, in inflammation be-
 lieved to be air would not emphysema or abscess,
 attended with inflammation? on the contrary of
 however it is very seldom the case. —

Declared? Not only does local effect arise from
 the opening of an abscess, but constitutional irritation
 also, commonly known by the name of hectic fever;
 what is usually called hectic fever, is no more than
 symptomatic fever, or fever from irritation. The heat
 of infection with the other parts, of the blood become,
 in some degree altered; rigors are experienced, which are
 followed by heat, & finally sweating; The frequency of
 this depends on the part, & on the degree of disease; it
 usually occurs twice in every twenty four hours, in the
 morning about two or three ^{o'clock}, & in the afternoon; sometimes
 it occurs only once, & in others, as where the abscess is in
 the brain, four or five times, in a day.

It was formerly ^{thought} that hectic fever was produced by the
 absorption of pus; but it is now acknowledged ^{that it is} ~~not~~ ^{not} ~~not~~ ^{not}
 occasioned by it; for when the pus is absorbed from an abscess,
 without that abscess breaking; or in persons abscess when
 digitalis has been given, & has caused absorption; or in tumors
 which has been about to break, but which disappeared

no hectic symptoms were produced. And a large ulcer in an external part, where the absorption of pus must necessarily be great, will not occasion it; tho' a small ulcer in the lungs will occasion violent irritation - the symptoms evidently depending on the importance of the part, or on the difficulty with which it is cured. This fever will occur after the abscess has been opened, & the pus discharged; or it sometimes happens without pus being at all formed: if a bougie be introduced into a bladder which is in a state of irritation, hectic symptoms will be present, & continue sometimes, for several days, unless opium be quickly given - It is also seen in diseases of the joints without any formation of matter. A Woman in Guy's Hospital had her thigh amputated, on account of a disease in the knee, attended with symptoms of hectic fever; sometime after, it seized the other knee; ~~which was also amputated~~ but on examination, no trace of matter could be found.

We come now to speak of the second ^{mode} ~~mode~~ of union by granulations.

And first it is necessary to speak of ulcers; we will suppose the cavity of an abscess to be opened; within three days inflammation takes place on its internal surface, & a layer of coagulable lymph is thrown out, which soon becomes

organs from the surrounding blood vessels; these
 newly formed vessels terminate by open mouths on the
 surface of the lymph, pouring out pus & coagulable lymph;
 and thus new layers are thrown out on the former ones, &
 the cavity is filled up, with irregular surfaces; each layer
 being a bed from which granulations arise: so that the differ-
 ence between adhesion & granulation is: that the vessels
 of the former do not open on the surface of the matter, but in
 the second they do; granulations may therefore be defined
 to be, new portions of animal substance, formed to fill
 up cavities & to secrete matter. That granulations are vas-
 cular is plain, an artery enters the basis of each granu-
 lation, & branches out into a great number of ramifica-
 tions; which are accompanied with veins to carry back the
 blood which is not required to form pus. In old ulcers there
 are a great number of absorbents, tho' there are comparative-
 ly few in recent ulcers; corrosive sublimate in a lotion
~~was~~ ^{was} injected into an old sinus in the back, & occasioned sty-
 gem in three days; but no such effect will be seen in
 recent ulcers - indeed the surface of an old ulcer is the best
 absorbent surface that is known. Granulations from a muscle
 are very sensible; more especially when inflamed; that from
 a bone or tendon is not very sensible; & indeed that from a tendon
 is little more than a fungus.

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Granulations form at these surfaces, when placed in contact, and unite: when the white is removed the sides, granulations never unite by adhesion, but by granulation. Indeed this power should be sometimes particularly guarded against, as in granulations between the fingers or toes, between the abdomen & thigh, or under the neck in scalds, where if allowed to go on the parts will unite producing deformity & inconvenience.

Cicatrizization

Is the formation of new skin over a sore; granulations form from the skin round the wound, which unite to those on the surface of the ulcer; from day to day, new arise from the edges & cover those near them on the sore. It is a general law that vessels arising from any one part, are of the same nature with those from which they arise; as those which shoot from a bone into coagulable lymph, become bone; & therefore that layer of granulations which proceeded from the skin is vascular, & has a power of forming new skin; but it is some time before the rete mucosum & cuticle are produced; at first the cicatrix is red, then white; & this change of color is produced by a change in the diameter of the vessels, by which also the cicatrix is contracted. in black it remains red for some time, & afterwards is blacker than other parts.

38 cicatrization is not so soon effected on a circular, as on a longitudinal ulcer tho' their surfaces be of equal extent. The reason of which is that in the latter they have not so far to shoot before they unite, as in the former; it should therefore be observ'd that in amputations so much integuments should be preserv'd, as that the wound should only form a line. It has been said that cicatrization has been known to commence in the middle of an ulcer; but in such cases it will always be found that tho' the outside might have been destroy'd, a portion of true skin still remain'd; from which the new skin was form'd.

A Lotion of acetated Zinc will hasten the formation of new skin in a surprising manner.

Treatment of ulcers.

When the granulating process is proceeding the best application is the common poultice; & when the granulations are even with, or a little above, the surrounding skin, the ulcer is dispos'd to cicatrize, & not before; at this time the poultice should be discontinued, & lint should be apply'd to the centre of the granulations (but it should not touch the sides) to retard their growth; the lint should be moisten'd with a simple ointment, & a roller should be bound over it, & to join the whole. If the lint be suffer'd to touch the edges of the wound, when it is remov'd the granulations pro-

-ceding from the skin will be destroyed, & cicatrization
 will be prevented; if the granulations rise too high,
 those which are nearest the skin should be touched
 with the *argentum nitratum*; but it should not be
 applied all over, as it will give great pain, & is alto-
 gether unnecessary. When granulations are languid, &
 have a glassy appearance, or when they are not suf-
 -ficiently organized, stimulants will be proper; as the
 tincture of *Hydrargyri Nitrate Rubri*, in the proportion
 of $\frac{1}{4}$ of the powder to 3i of orange; *arguentum Gummi*
Elemi, & solutions of the Sulphat of Zinc or of copper. An in-
 -flammation on the surface of an ulcer is known by its
 being covered with coagulable lymph of a brown color, & dis-
 -charging a bloody serous matter; fomentations & poultices
 will reduce the inflammation; & granulations will then
 arise. Cicatrization may be prevented by a stopping
 of the ulcer; & here a Lotion composed of 40 or 50 drops of
 the nitric acid to a quart of water, will be found of the
 greatest service; it soon destroys the fætor, separates the
 slough, & occasions the parts to granulate; if the sloughs
 are deep it may be applied warm, but if not, it will
 be proper to apply it cold. Turpentine applications, as the
 warm *Spiritus Turbinthina* diluted with oil or lard will
 also be of service; as also the *Aqua Calis Catomelane*.

40 Sloughing of the Labia pudendi is very common to children in scurvy; & sometimes proceeds to such extent from the constant passing of urine over it, that the child dies from irritation; the following has been found to be the best application in this disease:

℞. Serebriusina Zi

Olei Commun: Zi An —

Lecture 9th Ulcers will sometimes become sinuous: in this state it not unfrequently happens that their internal surface is callous: an injection of a solution of copper vitriolatum ^{or} *℞. Cantharidis* ^{improper} *℞. Hydragmuri* ^{or} which is by far the best, in the proportion of ʒi to ʒi of Water: the copper vitriolatum should be used in the quantity of ʒij to the same quantity of water; if these injections do not succeed a seton should be passed thro' the substance of it; the seton however should not be kept in it long after it has answered the purpose of stimulating the part; for if it does callous granulations are the consequence: the caustic trochie also is a good stimulant in these ulcers if the sinus be long an incision should be made thro' it by which we can best apply the stimulating application; indeed when it is situated in the rectum an incision should be made in every case, almost without any exception.

Irritable ulcers are sent either from constitutional, or local irritation; in the first no local remedies will be of service without attending also to the constitution. calomel & opium are given here, with the best success, care being taken that the calomel do not affect the mouth; the mercurial action destroys that of irritability, while the opium increases the pulse, & causes greater action in the part; a weak solution of the nitric acid topically applied is an admirable remedy, frequently answering the purpose when every other fails. If it proceed from local irritation of an extraneous body, that body must be removed before any good can be done to the ulcer. It frequently happens that the nail of the finger or toe will grow into the flesh causing great pain, & an ulcer of the part. If the nail be black, & ulcerated round, it should be removed, either with the knife or caustic; but it sometimes happens, that after it has been removed, another will grow, which shall be moved as the former. Here it will be necessary, not only to remove the nail, but also that part at the end of the finger which produces the nail. Sometimes when the nail has grown into the flesh, the flesh grows over the nail producing an ill looking ulcer, resembling fungus or even cancer; to remove it, ^{introduce} the slender point of a hair of

insert under the nail to the root take off about $\frac{1}{2}$ ²²
 engage it from the flesh by means of forceps; this heals
 quickly, but is extremely painful & therefore people are
 unwilling that it should be done; there is another method
 which generally succeeds with less pain, tho' it is more tedious:
 scrape the nail with glass, & place between it & the flesh
 a small bit of lint; this should be attended to every day.

When ulcers continue irritable after the extraneous sub-
 stance has been removed the following has been found
 of great service: ℞ Aq: Calis 34

Calomelan: ʒi

℞ Opii ʒij M. f. Lotio -

when ulcers are extremely painful the following Ointment
 is very good - ℞ Opii Purif: ʒi

Arum: ʒi M. f. Ungt.

A child three years of age, had a limb amputated in conse-
 quence of an accident; violent spasms followed which threat-
 ened the life of the Child, but which were relieved by the Opiate
 Ointment applied to the Stomach. Great care however sh-
 ould be observed in the use of opium; if applied in too large a
 quantity, or continued too long, it will produce coma &
 death; when applied freely in scalds also to the face, convulsions &
 death may be the consequence.

When the edges of a ulcer is indolent, it is known by a white & thick cuticle projecting over the granulations, preventing cicatrization; the Unguentum Agdrazzari should be applied to the callous edges, & other applications to the other parts of the ulcer; scarifying the edges, to cause inflammation & separation of the cuticle; Kali purum; or blister on the ulcer as well as the callous edges, are also proper.

When the ulcers are indolent, the mild Arsenic ointment will produce good effects: \mathcal{R} Arsenici \mathfrak{ss}

Oil of Turpentine \mathfrak{ss} or if it be wanted more caustic \mathcal{R} Arsenici \mathfrak{ss}
Oil of Turpentine \mathfrak{ss} —

The first stimulates, the second destroys the part to which it is applied.

When the edges of an ulcer turn in it usually denotes great debility, & a scrophulous habit of body. The best mode of treatment is: \mathcal{R} Argenti Nitrate \mathfrak{ss}

Oil of Turpentine \mathfrak{ss} or if it be

This the surface of the ulcer should be touched twice a day; laying over it a piece of lint wetted with the Aqua Caloris \mathfrak{ss} Calomelane & over all old silk which prevents the evaporation of the Lotion.

If the edges of an ulcer turn out & eventually render a dangerous state of the sore; in cases they are caused, from a fungous surface -

Ulcers are very irritable in persons who have a disease of the liver; applications to the part avail but little ~~without attending~~ if the visceral disease be not attended to; mercurial ointment should be applied & if the ulcer be in the lower extremity a long roller should be applied from the foot to the knee; & the following pill given once a week or more: \mathcal{R} Calomelan: grⁱ
 Scille - gr^{ss}
 Gambogia gr^{ss} in spiritula -

The following will also be of service: \mathcal{R} Rad Digitalis 3ss
 Trac Cort P. 3ijss

or two Teaspoonfuls three times a day.

It sometimes happens in Women whose menses are obstructed, that indolent tumours appear on the legs, which are hard & livid; & when ulcerated resemble venereal; a flow of blood proceeds from them once in a month; & tho they may be in a way of healing on the recurrence of the menstrual period, they again become as bad as before. They will not heal unless the constitution be also mended; the internal use of myrrh, steel & kali; & an Ointment of a ℥i of gum precipitation to 3i of oil, will generally succeed.

There is another disease of the lower extremities very difficult to treat; a general redness of the skin from the knee to the foot, the cuticle separates in scales, from which an ichthous-like scurge proceeds; it arises from debility, & a morbid secretion of the arteries. The best application is,

℞ Hydrargyri Mercuriat. ℥i

Aquo Calis - 3i M. 6602

should be wetted with it, & applied to the limb, with a roller on all; it should frequently be wetted by a sponge; if this do not succeed, the Unguentum Hydrargyri Nitrat. Rub: with Lin: is very proper - tho' patients sometimes object to it, on account of its smell.

The mode of bandage recommended by Dr. Ferguson is excellent in indolent ulcers where the skin is not irritable; its good effects are produced by its bringing the granulations of the skin & ulcer together; & by its smoothness allowing the granulations to shoot; there is no necessity for rest, if no inflammation be present. In gouty persons, & those who have lived freely, where the cuticle is irritable, these plasters do not agree; & when this is discovered they should be discontinued. Mr. Cooper divides those ulcers which are brought into the Hospital, into 3 states; when they are first admitted, inflammation is usually present, & poultices, & fomentations are ordered, to remove it; he then applies the cerumen

Hydragryi milies to produce granulations; or sometimes the ointment mixed with the poultice; & when the granulations have reached the surface, the Unguentum *Hydragryi Nitrahi rubri* diluted is applied, confined by a long roller; or sometimes the adhesive plaister.

Mortification

The fourth effect of Inflammation, & consists in the death of the inflamed part; it may be produced in two ways: first by the high, active inflammation; & secondly by the low inflammation, following the application of cold. In the first way, after the part has been highly inflamed, vesications arise on the surface, containing a serous fluid, mixed with blood; the skin beneath is dead & insensible, & of a brownish-red color; the patient becomes suddenly easy, & the constitution much less affected; The diagnostic signs are: hiccough, circumscribed flushes on the cheeks, & vomiting; the two last are not such constant symptoms as the first, & M^r C has seen an instance in which no hiccough was present.

It is seldom that mortification is occasioned by cold in this climate; tho' we sometimes see it. It commences with a numbness in the part, & a livid color of the skin;

on approaching, a fine great pain is felt, & the part becomes red; if however, heat be not injudicially applied mortification does not immediately succeed, but the part is alternately inflamed, & cool, untill at last it is mortified; some parts are more subject to mortification than others, ^{from cold} as the toes, fingers & extremity of the nose; & this proceeds from the varieties of temperature to which they are expos'd, friction with snow will restore the circulation, when stopp'd from cold, before mortification commences; but after that, it must go on untill it separates spontaneously; mortification has been hinder'd, ~~by~~ & applying ice to strangulated hernia inclosed in cloths; but this custom is now discontinued—

A few hours after the parts have become dead the progress of separation may be seen commencing; a white line surrounds the mortified part, produced by an elevation of the cuticle; when this white line is seen we may know that the progress of mortification is stopp'd; beneath the line is a quantity of serum, which increases, & a deep groove is form'd by the absorbents taking away the parts; & the muscles, blood vessels & bone are separated by this absorbent process— in the artery the blood coagulates & fills it up, several inches above the mortified part, & by this means the division takes place without loss of blood.

Those parts in which the circulation is most feeble suffer most severely from mortification; particularly the tendons; & hence it is advisable not to amputate among the tendons, for fear of this consequence.

Ossification of the arteries is sometimes the cause of mortification, & is frequently met with in old people; the want of a contractile power causing the blood to stagnate.

Treatment

When there is general debility & local inflammation threatening mortification, general bleeding would be improper but topical bleeding from leeches are absolutely necessary; leeches also should be used, & the Aqua Ammonia Acetata applied to the part; this treatment will sometimes prevent mortification; but the stimulating plan, which some Surgeons use, will quicken its progress.

But when mortification is actually present Bark, opium, ammonia, & a generous diet are necessary; a poultice of stale beer grounds, wine lees, or wine & linseed meal, or a table spoonful of yeast added to a pint of water & made into a poultice, should be applied; when the mortification is deep, warm fomentations should be constantly kept up; & also warm turpentine; no amputation should be performed until the soft parts have separated, & granulations are forming;

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The separation will generally be made as ~~was~~ smooth
& neat as a surgeon could make it - There is a mortifi-
-cation in old people, similar to that arising from
cold, which Mr. Pott has ~~improperly~~ described as a sepe-
-rate kind -

The carbuncle, ~~which~~ is most frequently seen in those
old people who have lived freely; it is an abscess in which
the cellular membrane, instead of forming pus, mortifies.
It resembles a boil; the skin over it is livid with a small
hole in the centre for perhaps two or three from which gru-
-mous blood, & sometimes a little pus, can be press'd out -

They generally occur on the back where they rarely prove fatal;
while those which appear on the head are dangerous, indicating
some, from an effusion on the brain - The constitutional treat-
-ment is the same as in mortification; an incision should be
made thro the part, to cause sloughing; & warm turpentine,
stimulating poultices, & hot wine should be applied -
Suture is -

2

Injuries of the head

Lecture 10th The symptoms of injuries of the brain are: vomiting involuntary discharge of the feces & urine; loss of sense and of voluntary motion; sometimes coma, or falling insensibly. The pupils of the eyes are usually dilated; sometimes tho' rarely, contracted, & there have been instances where one eye has been dilated, & the other contracted; hemiplegia, or convulsions, sometimes occur, on the side opposite to that which received the injury; this however depends on the degree of injury; for when the violence has been very great, no paralysis occurs; & when slight, no convulsions. The breathing also, is much affected, & resembles the stertorous noise, which people in apoplexy make - this, however, is not a constant symptom; the pulse is usually slow & laborious; after a time it becomes so again, & under any degree of exertion rises to 130 or 140; the carotids throb greatly; & in the second stage of the accident the extent of the injury may be judged by this; & this throbbing of the carotids may exist, when the pulse at the wrist is not at all affected; blood is often discharged from the ears, nose; & if considerable from the former, it is to be considered as dangerous, as indicating a fracture of the basis of the skull, & thro' the petrous portion of the temporal bone; bleeding from the nose is often accompanied with vomiting of blood; but this generally proceeds from the blood trickling into the nostrils from the nose. The patient will also, frequently lose his sight, & hearing; the latter proceeding from a fracture of the base of the skull.

There are two causes which may produce these symptoms; these are concussion & pressure we will first speak of concussion.

is usually present in a shock which alters ^{the} natural action of the vessels; & it only waits for their restoration again to be in an healthy state; & this restoration is often brought about by spontaneous vomiting; but in very severe cases & where life is destroyed by it the brain is, for the most part, lacerated; the small vessels of the pia mater may be torn from the surface of the cerebrum, & others lacerated. Concussion is distinguished from compression, by the breathing not being affected. whereas in the latter it is stertorous; at first the pulse is natural; & when inflammation comes on it is not slow & labored; in these two symptoms concussion & compression differ; in every other they are alike.

Treatment

No disease is more easy to treat than this; inflammation is certainly present, & should be guarded against its violence depends on the extent of the injury. nothing that could irritate should be allowed to come near the patient; no light or heat admitted into the room; nor should any conversation be allowed; & abstinence should be rigidly observed. If the pulse be not affected, no blood should be taken away; as it may lower the supply so that he falls a victim; if the pulse rises afterwards blood should be taken off & to ascertain this he should be seen two or three times in the day; it is better to bleed often & in small quantities, than to draw off much at once; as the effects can be better regulated - it will be of greater service if the blood be taken from the temporal artery, or jugular vein - a stool should be procured 2 or 3 times every day; & some perspiration kept up; but not by any pre-

be a trans of opium; if the symptoms are not relieved by this a blister should be applied to the head; - and will frequently procure sleep when every other means fail. In children leeches to the temples, a blister to the head & purges are usually sufficient to the cure. Particular symptoms will often remain, after those of concussion are removed; as paralysis & then electricity may be employed to advantage. Epilepsy is sometimes produced by concussion; & this may sometimes be occasioned by a splinter projecting into the brain, causing irritation; this should be removed by the trephine. When the injury has been extensive, the patient will sometimes remain for life, in a state of idiotism.

Compression of the brain

May arise from three causes: extravasation of blood; depression of bone; or formation of matter; the symptoms of these are different. When the compression is caused by a blow, the symptoms come on gradually; at first the patient is very little affected; he then becomes heavy & sleepy; & then breathes stertorously; the pulse is slow & laborious, & frequently very irregular; vomiting is a constant symptom. As these symptoms come on gradually we should be cautious in giving our prognosis; for it will often happen, that tho' at first apparently uninjured, fatal consequences may arise in a few hours: a child fell from the top of the ground, on its head, but apparently received no serious injury. & this was the substance of the surgeon's prognosis; but in the evening it was seized with stertorous breathing; shortly after became comatose, & before the morning was dead.

Blood may be extravasated in three situations: between the

dura mater & skull. in this case there is usually a fracture: between the dura mater & tunica arachnoides, & in the brain itself. In extravasation of blood on the brain, where the symptoms are violent, we should examine the head with the greatest care, to ascertain where the injury is; for it sometimes happens, that the injury is not where the blow was ^{received}, but where the head came to the ground; in such cases unless death appear certain without it, it is better to deplete than operate. Mr. Pott advises if the extravasated blood be not found by trephining at first, that we should go on operating until it is discovered; except however, it is ascertained that the trunk of the internal artery is divided; we should not trephine without fracture, unless death is the probable consequence without it.

Lecture IInd A fracture of the skull does not in itself produce symptoms of injury to the brain; & extensive fractures & fissures often exist without any symptoms. Symptoms therefore, with fracture indicate extravasation of blood on the brain; & these fractures are often situated on the side opposite to that on which the blow was received; this is called a counter fracture or fissure, & is occasioned by the head falling against the ground. In such cases the plan of depletion should be followed, as in concussion; & the trepan should never be applied unless symptoms of injury to the brain exist; & not then if the symptoms are not violent. But if no symptoms exist at first, & they come on gradually, it is probable that there is an extravasation of blood beneath the fracture; & here the trephine should be applied, & the extravasated blood

recovered. Fracture thro' the base of the cranium is more common & dangerous than any other, and is generally accompanied by inflammation, or extravasation is produced & the patient is destroyed; & nothing can be done for relief.

When fracture is accompanied with depression, symptoms of compressed brain are produced; but a depression of the outer table of the skull may exist without pressing on the brain, but only on the inner table; when however, both tables are driven in symptoms of compression arise. Their violence depending on the degree of compression. If called to a fracture with depression, but without wound of the scalp, or symptoms of compression, the trephine should not be used; but we should rely solely on depletion. But when the depression is accompanied with a wound in the scalp, tho' no symptoms of compression exist the trephine should be applied; for the operation is not invasive & removes all danger of bad symptoms; when there is a wound of the scalp, inflammation will certainly come on, about the fourth day; but trephining at that time will not ^{the only way} remove death is the consequence. When the trephine has not been used & the depression remains, the patient is subject to headache, dizziness & epilepsy, on drinking spirit, or using exertion.

In trephining, if a fragment of the inner table be not observed, the irritation caused by it will be such, that any debauch, or even exertion, will excite inflammation. It is a very common thing for a person who ~~has~~ ^{has} survived a violent blow on his head to have a great depression of the scalp; but on making an incision thro' it, no depression can be discovered; The fact

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is that the blow has driven the scalp, & depending on extent
of laceration, & the nature of the wound, & the position of the
wound, & a depression in the middle.

Depression of the skull frequently causes a rupture
in the brain; which / tho' generally considered extremely
dangerous / with proper treatment, is usually terminated
well; a man received a blow on his head which fractured
the os frontis; & ~~the~~ part of the brain was driven out of
the wound; the integuments were brought together,
& united; & the man never had symptoms of injury to the
brain. And if a piece of bone be driven in, & the part of
the brain be lost, less symptoms occur than when the bone
is depressed without loss of substance of the brain. Most
frequently, after a wound of the brain, a fungus arises thro'
the cranium, consisting of coagulable lymph, & brain;
this fungus has very generally been considered as incurable;
but with proper treatment it never proves fatal. When the
fungus begins to arise thro' the hole in the bone, a piece of lint
not thicker than the bone, that the brain may not be compressed,
should be applied; a piece of adhesive plaster should be
laid over it, & a cap bandage to confine the whole; it is soon
reduced, & in a week or two is usually destroyed; in obste-
-rate cases the lint should be dipped in lime water.
If it has risen high it may be divided by a thread tied round
it, & lint applied, as before recommended; it should not be
cut off with a knife, as it is then more disposed to grow
again. Depression has been known to exist for 12 months cau-
-sing a derangement of the functions of the brain, & all that time;

56 but upon removing the bone with the trephine sense has been restored.

The symptoms of compression of the brain from the formation of pus ~~between~~ the symptoms coming on from the 7th the 20th day after the accident, are: severe pain in the head; glossy state of the granulations of the wound; puffiness of the scalp, & rigors every 2 or 3 hours; the countenance flushed & the eyes red; vomiting; hemiplegia on the side opposite to the injured part; & convulsions, indicating death. On dissection pus is found between the dura mater & skull, or between the dura mater & tunicia arachnoidea; ^{in the} substance of the brain; sometimes these abscesses burst into the longitudinal sinuses, causing sudden death. If matter situated under the dura mater be discharged by the operation, life is not preserved.

Operation of trephining

The instruments formerly in use for this operation, were; rasp, perforator, crown, pin, brush, forceps, elevator, & lancet; but all now required are: knife, 2 crowns & elevator; the knife should have a double edge; one to make the incision & the other to act on the bone. The first incision should be made to ascertain the direction of the fracture; & when this is discovered it should be followed with a longitudinal incision; & where the fracture is largest the trephine should be applied, if it be depressed at that place. The crown is to be applied on the sound bone, taking in a small portion of the fracture, having first cut thro' & scraped back the pericranium. But it should be observed here, that it is improper to apply this instrument in any part of a line of fracture from the nose to the occiput, for under

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it little spine of the os frontis which from its internal
irregularity cannot be cut thro' without wounding the
Dura mater; & at the top the sagittal suture & longitudinal
sinus. Tho' these have sometimes been cut without
injury. It is useless to beeline on the frontal sinus; &
tho' it has been done it is improper to operate where the Du-
ra mater artery passes. The pin of the instrument should
be used untill a furrow is formed sufficient to fix the crown;
& then it is better to go on without it; clearing the sulcus at
times, with a probe. When the instrument is arrived at the diploe
it bleeds a little; but in aged persons this is not to be expected as
the diploe in them is ossified. In a young subject it often happens
that the instrument passes thro' the skull in a few turns; but when
nearly thro', the turns made by the hand should be short & gentle.
The position of the hand in sawing, should be changed; for if it
remains the same, the instrument is tilted out of its course,
producing an inequality; by which means it may go thro' on
one side before it does on the other. When the crown has done its
office, the piece of bone should be lifted out with the elevator;
& the depressed bone then raised into its place; if this is pre-
vented by a projecting corner of bone it may be removed by
the saw invented by Mr Hay, of Leeds. If the operation has
been performed for an extravasation of blood, the wound should
be left open, & by no means healed by the first intention; for a
formation of matter may cause much inconvenience.

On hydrocele

Lecture 12th

The tunica vaginalis testis in the natural state secretes a vapor; which sometimes morbidly increases, & condensing forms that collection of fluid called hydrocele; it commences with a loose swelling in the bottom of the ^{scrotum} testis; as it increases the tunica becomes distended, & dense; is pyriform, being broad below, & growing gradually smaller until it terminates near the abdomen; at first it is attended with no pain; but as the water accumulates, & by distention and weight, great pain is experienced in the part, which extends to the loins, accompanied with a sense of weakness. Exercise is always inconvenient, especially that of riding. By its fluctuation hydrocele may be distinguished from every other disease of the testis; it is generally transparent, but to discover this the following conduct must be observed: the scrotum should be in a relaxed state & the fluid pushed from the posterior to the anterior part in order to make the skin tense; the room should be darkened & the candle placed behind the tumour. If we examine closely we can find the situation of the testis; it is usually situated at the inferior & posterior part of the scrotum, but there are many varieties.

It is known from other diseases by its being much lighter; when a testicle is enlarged, it still retains its natural form; when the testicle is diseased, the veins of the scrotum are enlarged; it is liable to be confounded with hernia; but coughing will momentarily enlarge the hernia, tho' it does not affect the hydrocele; hydrocele is a permanent tumour whereas hernia can frequently be returned; if however the hernia be irreducible, it is easily distinguished by causing the patient to cough. The

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Hernia is found to commence at the top of the scrotum when
the inguinal canal is seen first at the lower part; but sometimes her-
nia & Hydrocele are united in one subject; & if the intestine
& the tunica vaginalis have adhered known by its being indis-
cussible we may operate for the Hydrocele; but if no adhesion has
taken place the operation will be improper.

There is a disease of the tunica vaginalis, called Spermatocele,
in which the fluid collected is blood; but this is not transpa-
rent, & may always be traced to some injury of the part: does
not fluctuate, is weighty & dense. — and Hydrocele may
be distinguished from every other disease of this part by the
mobility of the tumour.

Varicetes

Sometimes there are two tumours, one above & the other
below the abdominal ring, in the scrotum; this is what is
occasionally seen; the upper one being taken for hernia, from its being
affected ~~with~~ ^{by} coughing, from the action of the abdominal
muscles; & there being no certain distinction, the operation sh^d
be performed with as much caution as for Hernia. The testis
is usually situated behind, yet if inflammation has preceded
it may contract an adhesion to the fore part of the scrotum,
forming an Hydrocele both above & below it which
communicate by the sides; & unless great care be
taken, the testicle may be wounded in the operation. Hydrocele
above
& below
As a consequence
of inflammation sacs may be found at different parts of
the tumour, each being a separate Hydrocele; here it is evident
that one operation would not radically cure the complaint.

From much exercise, red particles or globules, will some times
mix with the water, & render it thick & turbid & these have

been instances of its being purulent. In old h. & scabs, the
in air, & being becoming cartilaginous as is the case
where the contents were purulent or even long not collapsing
even when the fluid was evacuated.

More hydroceles happen on the right side than on the
left. Out of 71 Mr Cooper found that 34 were situated on the
right, 26 on the left side, & 11 double. It occurs most fre-
quently in aged persons, but by no means exclusively;
an infant 11 weeks old, has been known to have it; when how-
ever it is met with in the middle periods of life, it usually
is occasioned by accidental circumstances.

It arises, not from an atony of the part or from di-
minished power in the absorption; but from inflammation in-
creasing a determination of blood to the part, while the
absorption is increased, but not sufficiently so to carry off
the secreted fluid. That the secretion is caused by
inflammation & not atony, the following will show:
when the tunica is cut open it looks redder than usual, &
is thicker than in its natural state. It often follows in-
flammation from a blow gonorrhoea &c; & the injection the
veins appear much increased in size. That the absorption
is more strongly than usual is proved by their great increase
in size. In warm climates it appears to arise from relaxation
but only so as the parts are more exposed to injuries, which oc-
casion inflammation.

The treatment is either palliative or radical; but it is only
advisable to palliate only as in old people, where the attempt
at a radical cure will, sometimes, prove fatal, by bring-

in on inflammation & loggia it; but in young patients
injection produces very little effect.
palliative

The instrument which is the best for the operation is a very small
trocar, finer than a lancet; grasping the tumour it is introduced
two-thirds of its length from the bottom, keeping it obliquely
upward to avoid wounding the testis. The instrument should
be introduced gently & in a rotatory motion; but before this, it is
necessary that the exact situation of the testicle should be as-
certained; if there be any doubt concerning this the operator
should not confine himself to introducing the instrument
exactly $\frac{2}{3}$ from the bottom, but where the fluctuation is most
distinctly felt. Sometimes a lancet is used to puncture
the scrotum previous to introducing the trocar. but this is
unnecessary if the trocar be small.

The radical cure

It is performed either by absorption of the fluid, adhesion of the tunics,
or granulations; in children it can for the most part be cured
by causing absorption; R. Mur. Ammon. Zi

Ag: Ammon. Aut: Zi Infusio

This applied on cloths to the scrotum produces absorption by the
irritation it produces. After tapping also when the fluid
is collecting again this application will cause the water to be
absorbed & effect a cure.

Adhesion may be effected by the tent seton injection &
caustic: incision will cause it to granulate.

lecture 13th cure by the tent: a small incision is made on
the anterior part of the tumour & a piece of hung or lint

introduced, as little of the water being allowed to escape as possible; inflammation, & a deposition of coagulable lymph is the consequence; & as the water gradually escapes by the tent, the tunica vaginalis collapses, & the adhesive process at last took place at all parts. This would be the best operation, were it possible to confine the water as long as is required; but it escapes before adhesion takes place. The tunica adheres in a folded state, & new hydroceles are produced.

The next method was seton, for which Mr. Pott was a great advocate, in opposition to Mr. Elze who recommended caustic; — one third of the anterior part of the tumour was occupied by the seton, which was passed with a round needle; it was found however that the water escaped by the holes of the seton; & that partial adhesions took place in consequence, & new hydroceles were produced.

Caustic was recommended by Mr. Elze of Leyden, as never failing to procure a cure; a piece of the size of a x pence, & as thick as the membranes, was laid on the anterior part of the tumour, & confined there by a bandage. here, the water was retained until the adhesive inflammation had taken place; but there are many objections to this method of operating; relapses will sometimes occur; the inflammation produced is so great as to prove destructive to life, in old people; & we know not the quantity of caustic necessary completely to destroy the tumour, in all cases; & when it is not completely destroyed we must still make an incision.

which is proper in different cases; they are by incision & by injection. The former is proper where the testicle is enlarged, & it is doubtful if it ought not to be removed; or where there are several cysts, each containing a separate hydatid. Grasping the tumour, the fluid is to be pressed forward in order to distend it; the incision should commence near the abdominal ring, & be continued towards the bottom, leaving a piece opposite the testicle uncut; by which the testis is prevented from protruding, & it is less difficult to cut.

The water having escaped, we should examine the testis to see if it be enlarged; & the tunica, to see if it contain cysts; the tunica is then to be spread out with the fingers, & ~~the~~ ^{our} to be sprinkled equally all over it; this acting as an external body brings on suppuration & granulations, & the union is equal all thro' - This however is a severe operation, & if the patient be weak or old may cause death.

Incision is, on account of its simplicity, as well as safety, the most common operation; the instrument employed is, a very small & long trocar, the canula not having an hole or split on the side, & an elastic bottle with a stop cock; the best injection is that made of a dram of zinc in a pint of water; brandy, & port wine have been used. The former is perhaps the best; but they are both improper as the quantity of spirit is very uncertain; if

64 may be used the injection is 2 drams of water,
is necessary to have a much injection, 6 or 8
drams, are sufficient for the largest syroccule; when the
water is evacuated, we should wipe the tumour with the
canula, & turn the bottle upside down, taking care that
none escapes into the cellular ^{membr} as it will do, if too much
injection be used, or there be lateral holes in the canula,
which will produce violent inflammation, & even death;
it is to be moved about the scrotum until pain is felt
in the abdominal ring, when it is to be evacuated; after
it has been felt in the abdominal ring, it also affects the
ureters, bladder, & even the thigh & leg; if the pain be severe
it should remain no longer than 2 minutes; & if felt but
little, 10 minutes; in general 4 minutes is a proper time;
it is not however, found, that the inflammation which follows
is in proportion to the degree of pain experienced - when the
pain has been very little about two drams may be left
in the scrotum, to insure success; in children the injection
should be but half as strong as for an adult - in 24
hours after the operation the tumour appears weighing;
it goes on increasing in weight & hardness, as the con-
solidable lymph is deposited; & in 3 or 4 days it sets on
receiving the impressions, & retaining the shape of the pain.
After the operation, it frequently happens, that a little
water is felt; but this will for the most part, be again
absorbed; & unless it remains long, it should not be evacua-
ted by puncture. This operation is very simple, but unless

except to happen; they occur however much less frequently when zinc is used, than when portwine is employed; but after the second operation, there has been no instance of a relapse. An enlarged testis, if the cord be not knotted, does not forbid the injection; but if knotted, it will be improper to use injection. In a tender & inflamed hydrocele also, suppuration is almost ever sure to follow even a mild injection. If great inflammation & pain come on immediately after the operation, the patient is to be bled; otherwise, he should walk about until inflammation is produced; inflammation is absolutely necessary to the cure, & therefore if other means fail to induce it, ~~it~~ ^{it} ~~should be~~ ^{it} ~~given~~ - The cure is usually complete in about 3 weeks.

Hydrocele will sometimes be produced in the tunica of the spermatic cord, or in the membrane of an internal sac; & is with great difficulty distinguished from hernia; it can be placed in the abdomen, & returns when pressure ceases; it dilates on coughing, & cannot be distinguished until it projects so far, as to be undoubted transparent. This happens most frequently in youth. If the operation is performed during this uncertainty, it should be by cautious incision, taking as much care as in hernia.

Another kind of hydrocele is when a communication exists between the tunica vaginalis & scrotum.

66 so that on pressure the water passes into the abdomen; -
but it will be highly improper to inject it so in in-
-jection may pass into the abdomen, causing violent
inflammation; or if the injection do not pass, the in-
-flammation certainly will. A truss should be worn, as for
hernia to obliterate the communication; & when this
is effected, we may operate, as in other cases.

When hydrocele has existed in an hernial sac, in a
patient that had ascites, Mr Cooper has laced the sac,
but never found that any advantage was obtained:
the water not running freely, but passing into the al-
-bicular membrane.

In encysted tumours, which are transparent
& contain water, instead of using excision, a radical
cure may be effected by treating them with injection,
as in hydrocele.

The natural state of the eye is such that the tears are constantly being secreted into the conjunctival sac, then being conveyed to the ducts of the lacrimal apparatus into the nose. It is some years since I have seen a case of this kind. The lacrimalis is a structure of the duct of the lacrimal gland, the passage of the tear to the nose, is divided into 3 stages. In the first stage, a tumour of about the size of a pea & oblong is situated at the inner corner of the eye, just below the tendon of the orbicularis muscle; on pressure being made mucus is discharged thro' the tumour to the conjunctiva & sometimes into the nose. Then an increased secretion of tears is caused by cold or other cause. They flow over the cheek, but not else. In the second stage the tumour appears inflamed; on pressure pus is discharged instead of mucus; & the tears run over the face more than in the first stage. In the third stage the tumour is so large that it is difficult to be deceived by it - the skin of the cheek is eroded, the cornea is ulcerated, the tears issue into the cellular membrane, where they form abscesses & are discharged, & granular tissue which cannot be removed until the crust is removed - there is only one instance known, of a spontaneous cure; when the conjunctiva exfoliated, by which a passage for the tear into the nose was formed.

Cause

In adults it generally arises from syphilis; inflammation in the nose, shutting up the duct & preventing

in the case of the eye, it is common, in consequence of the smallness of the operation seldom succeeds in them; & the pupil is so small in them that when the instrument is pressed off the structure returns; & for this reason it is better to wait until the head has acquired its full size before we operate - It also often originates in a pustule of small pox or measles situated in the duct & causing stricture -

Treatment

In the first stage, press out the tear & drop some of *lauggi dentata* or a solution of sulphate of zinc between the eye lids; it soon passes into the sac & abates the swelling but if this do not speedily succeed, a fluid & barley water is as good as any should be thrown in thro' the punctum by means of a proper syringe, with some degree of force, in order to remove the stricture. The upper punctum should be closed at the time, in order to prevent the escape of the fluid thro' it.

For Mr. Blizard has recommended an injection of silver, by means of a glass tube & this has been found to be a very proper method; the quicksilver in a few days finding its way to the nose. Mercurial ointment also rubbed into the inner corner of the eye, has been found of much service.

In the second or inflammatory stage when pus can be squeezed out, leeches & cooling lotions are proper; but here for the most part failing to cure an incision into the sac becomes necessary. First for the ridge forming the anterior boundary of the orbit, & carry the point of a

sharp pointed bistouri the eighth of an inch within it. The opening should be made in the direction of the fibres of the orbicularis muscle from a quarter to 6 of an inch so as to admit the passage of a probe down the duct after which a style is to be introduced. The manner of ascertaining of the passage of the probe thro' the duct by seeing a little blood trickle down the nose or by feeling it with an instrument - the top of the style should be saturated with the nitric acid to prevent its looking disagreeable.

The usual time to wear it, is three months; or when the discharge & swelling have entirely ceased; the time depends on the degree of stricture that existed.

The third stage is very apt to foil the Surgeon; there is no tumour by which the sac can be found; & the parts are so thickened that the orbit cannot be felt. The incision should be made according to the former directions, & with a probe search for the duct; if this, as is often the case, cannot be found, a new passage is to be made thro' the os unguis, by forcing the style or probe thro' it; this is easily done, the bone being very thin; & the style should be kept in it until a fistulous passage is formed when it may be withdrawn.

It is either an opacity of the crystalline humour, or its capsule the latter has by some, being called the false cataract.

The cataract is known to be approaching by a mistiness of sight, & opaque spots appearing to the Patient in whatever he looks; it is thicker at the centre than at the edges, & therefore the patient can see best when the light is not great. The iris is not then covering the thin edge of the cataract; but when a strong light causes the iris to contract the density of the lens prevents the passage of the rays of light. A heavy opacity appears behind the pupil beginning in the centre of the crystalline lens, & gradually extending - the color of the lens is usually white, but it sometimes varies, & we have seen one red; when the capsule is opaque, it is to be distinguished by the opacity being very near the iris, but in the true cataract the humour is farther back.

The cataract is found in three states; solid; fluid when the humour is milky; & partly solid, & partly fluid, when in operation, the fluid will escape leaving the solid part behind, so as to render it more firm & more solid. In a solid cataract many streaks pass from the centre to the circumference; but when it is fluid the opacity is uniform, & here the operation is only to puncture the humour, but if solid its removal is necessary. The cataract is sometimes seen loose floating; there was lately an example of this in Guy's Hospital. in whom on the motion of the eye, the lens was observed to move. It is often secondary.

It is often the effect of chronic inflammation; therefore in the human subject it often follows disease of the eye, or repeated attacks of ophthalmia. In opacity of the capsule is more frequently the consequence of inflammation than in the lens itself; horses are very subject to it. It often takes place without pain, or any apparent increased action whatever; Children are often born with it, & then it is almost always fluid, so that operation in them is simple. It is often seen in old people with a wasting of the eye & is accompanied with a disease of the orbit; in this case an operation would be improper.

Before we operate on old people we should know whether the eye be diminished, or the iris paralyzed; both of which circumstances forbid the operation.

The operation

The instruments are: a lancet shaped knife, thickening towards the handle, to prevent the escape of the aqueous humour, & of a depth sufficient to divide the inferior part of the cornea, while the operator is passing it from side to side - a needle to scratch the lens - a scoop to take out any remaining part of the cataract - & a small pair of forceps.

The patient should be prepared sometime previous to the operation, by the exhibition of calomel & rhubarb. The eye should be accustomed to the irritation by passing a probe over it daily. He should be placed in a low chair, an inch or two lower than that of the operator; with the eye looking directly

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To the point, to prevent contraction of the pupil, & conse-
quent impediment to the escape of the lens. The surgeon
should be seated before the patient with his foot resting on
the patient's chair. his elbow being fixed on his knee, &
his little finger against the patient's temple in order
to give a command of motion to his hands. The grand
secret in operating is to steady the eye by placing
the forefinger of the other hand on the globe, & then pre-
vent its turning inwards observing to withdraw it
when the knife has passed thro' the speculum, & forward.

An Assistant should place a pillow behind the patient's
head, & his left hand under his chin, keeping his head strong-
ly back against his own breast; while with the fingers
of his right hand, cover'd with a cloth to prevent their
slipping, he holds up the upper lid. The Surgeon then
introducing the point of his knife into the transparent
area just anterior to the opake, & passes it on to the
opposite side, by which a flap is made - then passing
in the needle, with its back to the lens until he touches it,
the point is to be turned, & the capsule scratched, when it
must be withdrawn, & the lens drops out.

The difficulty of the operation must be in proportion
to the motion of the eye; & it has often failed, from the point
of the knife going thro' the lamina of the cornea only: the
consequence of which must be a cicatrix: & hence the knife
should be first introduced with a slight obliquity downward.
A flowing of the aqueous humour overposing the iris

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If the knife must for a time be used in the operation, it should be covered with a thin layer of oil, & be kept in a warm place, & be changed at a future time.

If it be a false cataract, every part of the cataract must be taken out with the forceps, for it seldom becomes a solid.

The vitreous humour often escapes during the operation, & it is known that 3/4 of it may do so & the power of vision still remain; its place being supplied by the aqueous, but the escape of any considerable quantity flattens the eye & renders the sight very indistinct.

After the operation the patient sh^d lie in bed with his head must elevated, the room darkened, & a vas often wetted with honey over the eye to prevent inflammation. Nothing sh^d induce the surgeon to raise the eyelids for 3 days, & when the patient complains of much pain the flap unites, & water forms in 24 hours. Should inflammation supervene, leeches sh^d be applied to the head; & the temproal artery opened, & the antiphlogistic regimen strictly adhered to.

Section 16. Couching

Consists in removing the cataract from the centre to the inferior part of the eye; the needle invented by Mr. Hey is the best for this purpose. The patient should be placed in a strong light, & not obliquely as was recommended in the operation of extraction; an Assistant should raise the upper eyelid, at the same time pressing on the eye to fix it.

The Patient should sit on an elevated seat, & the Surgeon dipping his under eyelid, introduces the needle about 10 of an inch from where the transparent cornea joins the opaque; & passing it into the centre of the eye, until it is seen in the pupil; in order to avoid wounding the vitreous process; the handle should then be raised

74 so as to depress the cataract to the inferior part of the eye; the needle should then be withdrawn a little to see if the humor returns - if so it must be depressed again -

The objections to this operation are; that the cataract is disposed to return, requiring another operation; many eminent men prefer it, & among others, Mr. Hey; who finds it for the most part more successful than the other; & he does not consider the repetition of the operation as a material objection to the operation. It has been urged, that many parts are necessarily injured in it; but the inflammation which it causes, is not nearly so great, as that which follows extraction. Its advantage is that it is very simple; & therefore Mr. Cooper recommends it to his Pupils.

When the capsule of the crystalline lens is opaque there is great difficulty in extracting it - by breaking it down with the needle, the rays of light may be enabled to pass; but in the whole, in this case, the operation is improper.

Mr. C. has, in some cases, thrust the cataract thro' the aperture in the ~~iris~~ iris, into the anterior chamber, where it has been absorbed; & a more perfect formed eye appears to be the consequence. But Mr. C. cannot speak decisively on this subject - but care should be taken not to disturb the vitreous humor; or to take the retina from the optic nerve, by the motion of the needle; by which injury gutta serena would be caused.

Artificial pupil

The Iris being contracted so as to exclude the rays, the pupil is to make an hole for that purpose - or when there is an

opacity over the iris so that only a part is seen. Scarpa recommends cutting the iris for the ciliary membrane, by introducing the instrument thro' the transparent cornea. A Surgeon of Genoa, taking advantage of his knowledge of the ^{radiated} ~~transverse~~ ^{circular} fibres of the iris, carried the knife thro' the transparent cornea & cut so as to divide the ^{radiated} transverse; by which the ^{circular} longitudinal fibres contracted, & an aperture was left.

M^r Gibson of Manchester, carries the knife thro' the cornea & cuts off a part of the iris by niggars; but the operation is rather unsuccessful, the opening having a disposition to contract.

Aneurism

As a tumour containing blood, formed by the dilatation of the coats of an artery, & generally pulsating; it may be divided into three stages: in the first the tumour is insipient, & has a strong pulsation; is soft & yielding; & by compressing the artery leading to it, becomes emptied of its blood: this is the case sometimes, in the advanced stage, but not usually; there is no pain; often a cramp in the limb, & the skin of a natural color. In the 2nd Stage the tumour is solid, from the coagulation of blood on the internal surface of the sac; painful; pulsation less than in the 1st stage, & hence more liable to be mistaken for other tumours; a thrilling sensation is frequently felt, opposite to where the blood enters it - it often remains in this state a long time - In the 3rd Stage, the tumour is very painful,

76 as it reaches the skin; which then becomes inflamed, and
like a cancer, as if the circulation was retarded, being brown
or a brownish purple; the cuticle then separates, & a blood
choker is discharged; exchars are formed, just opposite to the aperture
where the blood enters the sac; these begin to slough at the edges,
& there is then, a danger of hæmorrhage; sometimes, but not always,
the patient dies immediately after the sac has burst. Life may
be for a short time protracted by applying large doses of opium
to the exchar; & covered by adhesive plaster, & a roller, to sup-
port the coagulum. Sometimes, the tumour bursts under
the skin, & an extensive ecchymosis takes place, the patient
dying from internal hæmorrhage.

The symptoms vary, according to the seat of the disease;
it most frequent at the curve of the aorta, just above the
pericardium; when below the curvature, they press on
the cartilages of the ribs, causing the absorption of them & the
sternum, by which pressure the process to the skin, where they
burst; sometimes also, they open into the pericardium. When
situated at the curve of the aorta it proceeds to the neck; when it
is often mistaken for an aneurism of the carotid; but may be
distinguished by not being so free from the lower part of the
neck. An aneurism of the aorta within the chest, will often
be pressing on the trachea or oesophagus; & instances are known
of this having burst into the oesophagus. When in the cavity
of the abdomen, it will often cause nausea & vomiting by
pressure on the stomach - they are found also, where the
glands arise; & the direction of the tumour depends on the size
of the aorta that gives way; when on the back, from its great
pulsating, it is apt to be mistaken for a lumbar abscess.

Circulation of aneurism

In the earliest state it is a disease of the internal cuticular coat of an artery; which is thickened & comparatively opaque; but when the artery yields, forming a pouch this cuticular coat is absorbed; this is soon followed by the absorption of the muscular fibres; so that the pericardial sheath becomes the aneurismal sac; as soon as an union can be formed with the surrounding parts, this also is absorbed; it thus goes on to form new sacs, which are gradually absorbed, until it reaches the skin, when it bursts - so that the coats of the artery form the sac only a short time, soon becoming spurious Aneurism.

The clot of blood in the sac is not formed like the stone in the bladder, stratum super stratum; but the outer layer is formed first, & the hollow gradually filled up; tho' a hole usually persists in the centre; in some aneurisms, particularly in those of the aorta, there is no clot of blood.

This Disease occurs most frequently from 30 to 50 years of age; & is most frequently caused by too much exertion. Mr Cooper never operated on any one above 69 years, or below 25.

A popliteal aneurism is in a great degree an accidental occurrence; occasioned by its situation, being so frequently bent, & the circulation so often impeded - & is often uncombined with any other; which is not the case in Aneurisms of other Vessels.

The following is the result of Mr Cooper's Operations for Popliteal Aneurism -

1 st 1802 -	} very well -	4 th 1802 -	ulcerated by on that side -
2 nd do		5 th do	aged 25 - died suddenly 6 weeks after - coarct was found
3 rd do			in the pericardium, & aneurism in the superior mesenteric artery.
8 th 1806		6 th 1808 -	unwound - but died following from bursting of a tumour
10 th 1808			in the ham discharging pus
11 th do aged 69			

72 7th 1813 11th day after Operation (see p. 12) - He has been
subject to contraction of all the muscles of the limb, which appears
to be quite distinct from tetanus - derived from Inflammⁿ of the artery
9th 1816 Died suddenly, 15 months after the operation

A Person whose circulation is threatened may be kept alive a con-
siderable time by frequent bleeding, & living low - a Discharge of
Blood from the bladder has been known to prevent the progress
of the disease - Operation for popliteal Aneurism

In the old operation after the tourniquet was applied, the sur-
geon exposed the blood taken out, & the artery tied; M^r. Hunter was
the first who improved this operation; and M^r. Abernethy made
still greater ~~improvements~~ ^{improvements} in it; Dr. Jones says that the division
of the artery is unnecessary; but M^r. Cooper finds that hemorrhage
is very likely to occur, from the retraction of the artery - The narrower
the ligature is, the better, consistent with strength; it acts by cutting
thro' the cuticular coat, & occasioning the adhesive inflammation
in the muscular coat - As far as experiments on living animals go,
the small ligature may be applied to cut thro' the cuticular coat,
& then withdrawn; the adhesion of the sides took place & the vessel was
obliterated -

The Incision should be made $\frac{1}{3}$ of the length of the thigh
upwards; for at that part it is more easily come at, & there are
few anastomosing branches; the operation consists in making four
incisions; the first should be four inches long, & should expose the
sartorius muscle; the 2nd should separate the sartorius at the inner
side, when it should be drawn outwards, & the femoral sheath is exposed,
the next incision is thro' the sheath; the artery is first seen, the vein

being torn at the line, & the nerve resting in the vein. 19
Slipping up the artery between the finger & thumb, we separate it from the vein; then taking a probe with a double ligature at the end of which a needle is attached; we pass the probe under the artery, - and away the probe & secure the ligature; the ligature should be passed twice thro', forming what is called a surgeon's knot. the first ligature being then secured, the lower part may be then dissected away without fear, using the first ligature to elevate the artery; when we have dissected away the vessel an inch below the 1st the 2nd ligature should be tied; ^{the artery being divided} W. Cline jun^r recommends that a needle should be passed a little below the ligature; & this W. C. thinks ~~is~~ very proper to be done, as he has known 3 instances where the ligature has slipped when this was not done. The Integuments are then to be brought together by adhesive plaisters, a little space being left between them to allow of the discharge of pus; no roller should be applied as pressure may prevent the action of the anastomosing branches. The Patient should rest on his hip, & heel, or foot; & not on the knee, if it be possible to prevent it; the ligatures separate from the 12th to the 15th day; if the broad ligature be used, from that to 23 days - the limb must be kept warm by flannel - & bad consequences may arise from the neglect of this.

This Operation will succeed for the anterior & posterior tibial Arteries -

Operation for Aneurism

Mr Abernethy was the first who performed this Operation; but Mr. Pagan ^{Birmingham} was the first who performed it successfully. Mr. Cooper has performed it three; one of which was above the parts ligament; Mr. Cooper does not think, that the vicinity of an anastomosing branch prevents adhesion; but, as he cannot speak positively, he would recommend operating as far as possible from such a part. The incision should be made, beginning an inch from the spine of the os ilium, four inches towards the abdominal ring, laying bare the tendons of the abdominal muscles, which must be then divided; then drawing up the edges of the oblique & transversalis with the fingers until we come to when the spermatic cord quits the abdomen, we draw it to the inner side, then inserting the finger thro' the ring it comes immediately on the artery, which is felt pulsating; a blunt forceps should be used to raise the artery without injuring the vein, & the ligature passed under it - the ligature should be double; when the first is secured trace the artery down, by separating it from the cellular membrane for 3, or an inch; a needle should be passed thro' beneath each ligature, to render it still more secure - when fastening the second ligature, an Assistant should hold the first; this allows of a more easy separation of the arteries -

Lecture 18. Operation for Carotid Aneurism.

Mr Cooper has seen but 2 examples of this disease; one in a woman on the right side - the other in a man on the left - the artery is taken

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of them: the inner edge of the sterno-mastoides is the guide
for the first incision, which lays bare the sterno-hyoid
muscles; their outer edges being separated from the sterno-mas-
toid. They are drawn towards the trachea by a double hook;
this exposes the jugular vein, which is large on inspiration, and
flaccid on expiration; & this change of size is embarrassing to
the Operator; on the inner side of this vein, the artery is felt
pulsating; drawing the jugular aside with the finger, we must
cut down on the carotid; & when this is exposed, the par vagum is
seen between the artery & vein; the artery & nerve are enclosed in
sheath which must be separated away, before the artery can be
ligated; an aneurismal needle is then carried under the ar-
tery, taking care not to include the par vagum ^{outside} ~~inside~~; the ven-
ous nerve on the inner side, nor any of those small nerves
which will be met with, running along the artery; having
raised the artery, a probe with two ligatures, & a needle to catch,
must be carried under it; & separating the two ligatures as far
as possible, they must be tied. In the first patient, the tumour
was so near to the clavicle, that the ligatures could not be sepa-
rated above half an inch; therefore the needle was not passed
thro' the artery, for fear of cutting the ligature; the artery was
on that account, only $\frac{3}{4}$ divided; leaving a slip uncut to prevent
its retraction; for if cut thro' it would have retracted into the
chest - the integuments were brought together by adhesive plas-
ter, & a roller applied overall.

For the cases see the case book.

There is no danger in taking up both carotids - the circulation
being continued thro' the vertebral - this was proved on a dog -
the operation is not painful -

82 Lecture 17- Amputation of the upper extremity-

In an Amputation of the axillary artery, make an incision 4 inches long, 2 inches from the sternal end of the clavicle. This lays bare the pectoralis major; which being divided according to the course of its fibres, the pectoralis minor is exposed; & between it & the clavicle the artery & vein lie; this space is about 2 inches from the upper edge of the pectoralis minor & the part of the clavicle under which the artery runs.

In tying the brachial artery, much care is required, to separate it from the median nerve; the incision must be made on the inner side of the biceps muscle; the nerve is first seen & on its inner side the artery; & below it 2 veins, from which it must be carefully separated. It is necessary to take up this artery, when it has been wounded in F.S. This is most likely to happen when there is an high division of the brachial, & the branch runs superficially with the vein. Sometimes, after the brachial artery is tied, the anastomosis is kept up by reorganization from the radial; & in this case we must cut down on it, on the outer side of the flexor carpi radialis. To take up the ulnar artery, the incision must be made in the depression on the inner side of the flexor carpi ulnaris, care being taken not to tie the ulnar nerve, which accompanies it.

Bronchotomy

Various circumstances render this operation necessary in suspended respiration from suspension - immersion - admission of extraneous bodies into the windpipe - tumours pressing on the trachea or larynx - or the admission of noxious air. In immersion, death is neither caused by apoplexy, or the admission of water into the lungs or stomach; but it proceeds from a want of that change which the blood undergoes from the admission of air; the left ventricle soon ceases to act; but the action of the right continues for a considerable time after the other has ceased; taking advantage of this, by throwing air into the lungs, we are often enabled to renew the action. In suspension also the cause of death is the same; apoplexy cannot cause it, nor is there any dislocation.

Sometimes, extraneous bodies cause immediate suffocation; at other times they remain long before they kill - when it is known that the body is in the larynx, a probang, as it may drive the substance down, & cause suffocation; in general we can take it up with the fingers. Coagulable lymph in croup acts as an extraneous body - when humours press on those parts so as to prevent respiration. Tho' the operation may give temporary relief, death is only put off for a short time. Noxious air, as carbonic acid gas, or hydrogen, destroy by their action on the nervous system, & not by constricting the muscles about the glottis - which is proved by this - that frogs will live in water, but not in carbonic gas.

in a warm situation, the body being first wiped dry; no pressure or friction should be employ'd at first; if possible some spirits should be convey'd into the stomach; & if there be congestion in the vessels about the neck & face, blood should be drawn from the jugular; in these cases the heart does not act, from distension; & drawing off some blood relieves this. Air should then be introduced into the lungs; but as a proper instrument may not be at hand, by pressing on the chest, & leaving off, by turns, thus imitating natural respiration, the breathing may be restored - or place the nose of bellows in the mouth, & close the nose, & press the larynx back on the pharynx to prevent the passage of air into the stomach - when we are thus imitating respiration, friction should begin; & its course should be from the extremities towards the heart. if friction be us'd before the lungs have been inflated, too much blood is thrown on the heart, & its action prevented. weak shocks of electricity or galvanism, are proper, but they are difficult to procure in many cases. Tobacco pipes are highly improper.

It has been the practice in performing the operation of bronchotomy, to make an incision one inch downward, from the cricoid cartilage; & below the fourth cartilage of the trachea pass in a knife handle - & gently; thro' this aperture introduce a scissor & push up the substance, but there is great difficulty, & much hemorrhage in this method, from a division of the veins of the thyroid gland; & it has succeeded but once in thirty years - Mr. Cooper therefore would advise that the

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It should be then performed - let the incision be made between the uvicoid & the ovi cartilages & then pass the knife thro' the ligament that unites them; no hemorrhage is caused by this & it is nearer to the extraneous body which is much more easily removed; there is no necessity for a canula afterwards -

Lithotomy in the female


We leave the symptoms of a stone in the bladder, until we describe the operation in the male; the stone is less frequent in the female than in the male, so far as the operation is concerned; on account of the shortness of the meatus urinarius - they feel a violent forcing pain in the extremity of the meatus - A male staff should be employed to sound as a straight stone would not touch every part of the bladder - the director being passed into the meatus urinarius, turn the groove with a slight obliquity to the side; but not so far as to endanger the vagina - Sometimes the stone is formed partly in the vagina, & partly in the bladder; this is occasioned by a laceration of the ~~perineum~~ bladder & urethra in labor; which occasions the dribbling of the water thro'; the stone is to be extracted, half in one way, & half in the other.

Lecture 20.

Hard lip

Is an unnatural fissure with which children are sometimes born; it sometimes extends to the nostril, so as to leave an opening between the nose & mouth; sometimes it is double, & both nostrils are joined with the mouth; in which cases it is common for the upper lip

86 To project the teeth being often thrust forwards it is some-
times complicated with a deficiency in the roof of the mouth, the
nose & mouth being one cavity; sometimes the deficiency is in
the roof of the mouth, not in the lip; & again, in the velum pen-
-tulum palati, & not in the bone.

It was formerly the practice to scissor the parts with pins,
but the present practice is to use sutures only; the operation
consists in introducing a lancet thro' the upper part of
the lip at each side, & bringing it downward so as to
be close so as to leave a raw surface; then pass a needle
into the red part of the lip about $\frac{1}{4}$ inch from the division
passing it into the opposite side, & out again in the upper part,
about from the division  - half way between the
first ligature & the angle, another ligature should be passed
in $\frac{1}{4}$ inch from the division, bringing it out $\frac{1}{4}$ inch on the other
side; the first is then to be secured, & then the second; if
the division is high up, near the nostril, a third ligature
may be made at the top; the same is required when any part
of the lip is taken away. There is no need to stop the opera-
tion on account of any ~~great~~ hemorrhage that can happen; when
about to pass the ligatures one may be passed near the mouth
of the divided vessel in order to compress it; but there is no need
to pass it thro' the artery tho' in an hemorrhage from the
removal of a cancer on this part. Mr Cooper was once obliged to
tie the artery. In children the ligatures should be removed
on the fourth day; if left longer they ulcerate, & on the fifth
they will pass thro' the lip, the adhesion also giving way. In an
adult they may be left until the sixth day.

In the scissile lower lip it will be a vain - Horn 87
operate on both at once - the first should be perfectly healed
before the second be attempted; & at least a month should elapse
between them - the projection of the bone should not prevent the
operation; & in young subjects the pressure of the lip will often
remove the deformity - the operation should not be begun
before the age of 2 years; for before that time it is very likely to burst
out again, & is dangerous to the life of the child. The hole in the
root of the mouth may be remedied by a plate of silver, & a piece
of sponge passed into the nose & communicating by a string. but as
the sponge collects the mucus, & becomes offensive, a spring has been
used: If the hole be in the soft palate, nothing can be done on ac-
count of the irritation, & I keep that the pressure keeps up.

Operation for retention of urine

We leave the causes of retention of urine until we come
to treat of Lues Venerea - When the urine is accumulated in the
bladder it is easily known by a tumour in the regio pubis, &
a projection into the rectum, easily felt on introducing the finger.
The trocar should be straight, & four inches long - the triaxen-
ular space 2 inches long, & 1 broad between the vasa deferentia &
vesicula seminalis, is the part to be punctured; having carried
the finger up to the projecting part, use it as a guide to the trocar;
the finger being then withdrawn depress the handle so as to give
the instrument a direction towards the navel, & push it forward;
the canula is then left to evacuate the urine, If the handle be
depressed too much, it passes before the bladder; if it be directed
straight forwards it passes into the cavity of the abdomen.

The objections to this method of operating are: by the twisting &

88 irritation, produced in the urine in the return disease of these parts is frequently recurring; it is not easy to avoid surrounding one of the vasa deferentia; & in an enlarged prostate, a frequent cause of retention of urine, it could not be employed with safety, as high inflammation, & even death, might follow it.

Operation above the scrotum. The Peritonæum is reflected from the rectus muscle to the bladder: so that when this viscus is extended from the pubes to a line drawn from the spinous process of one ischium to the other, a distance of about 2 inches it is covered with peritonæum; making an incision therefore thro' the integuments an inch long, immediately above the symphysis pubis, the trocar is to be directed from the pubes obliquely downward into the bladder, ^{for} if the trocar be passed perpendicularly down it will go between the bladder & pubes. The objection to this method of operating is, that the urine may get into the cellular membrane, between the bladder & parietes of the abdomen; which however cannot happen, if the trocar employed is such as Mr Cooper recommends; it has also been said that the cannula causes an irritation & ulceration of the bladder; but this may be obviated, by an elastic gum catheter being left in the bladder; the advantages of the method are: That it is more easily performed than thro' the rectum; & no parts can be diseased.

But perineurectomy thro' the perineum is the best; tho' it requires more anatomical knowledge than the other operations; let the incision be made, as in lithotomy, by the side of the urethra to the bulb of the penis; turn the bulb the prostate obeying the motion to the right side, & thrust the trocar in a right line


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backwards from the perineum into the bladder; if the instrument be inclined upward it passes between the ducts, forward; if downward, into the rectum; and however the bougie must be left in the passage to prevent ~~the~~ closing; great care must be taken to prevent the bougie from passing into the bladder, by fixing it by a bandage.

The advantages of this method are; that the urine is evacuated by its natural passage; & no danger accompanies it. It is frequently relieved without the assistance of a trocar, the urine having distended the passage, so as to be opened by the first incision.

But Mr Cooper thinks that this operation is often resorted to when it is not required; no disease of the prostate is a sufficient cause; for in every case of this sort, the catheter may be introduced; for this purpose the catheter must be 2 inches longer than that commonly employed; & the handle must be depressed more than usual, in introducing it.

When a stone in the urethra causes the retention, it is to be cut down on & extracted; stricture is the great cause; but even in this it is very rarely required; an incision should be made into the urethra behind the stricture, which point is easily ascertained by the distention to be observed there. The seat of the stricture may be ascertained by passing the sound, or catheter; make an incision in the urethra until the under part of the symphysis pubis can be felt; the membranous part of the urethra is situated here; & carrying a knife forward from it the urethra is laid open.

Polypi of the nose

The true polypi of the nose has the following appearance; it resembles a jelly in a bladder; of the color of amber - insensible - possesses very little vascularity, is bulbous, growing by a narrow neck from the membrane, & is often divided into 2 or 3 branches - moveable, disappearing on inspiring thro' the nose, & coming forward on expiration; this is only when it is small - when larger, the patient feels as if he had a cold, the nose being stiff; & this is more particularly the case when the air is moist; which may be accounted for, from the expansion of the polypi from the lightness of the air; & from their being no contraction from it. When it can go no further forward, it projects into the throat behind the velum pendulum palati. It usually originates between the superior & inferior turbinated bones near the opening from the nose into the nostrum; no pain accompanies it, until it is large, then it sometimes produces a sense of distension. Put the probe up the nostril, keeping it to the side of the bone, not of the septum, to ascertain the exact seat of the neck of the Polypi; the forceps (with points of this kind ) must be then pass'd up, the neck of the polypius being taken hold of it is to be drawn gradually & regularly, twisting it round if any resistance be made; if it be firm it may be extracted with a pick; but if part of the neck of the

tumour remains it will grow again - the soft polypus is best extracted by the first method; if part of the base come away with it, it is desirable as it cannot grow again; if a part remain a caustic tonic or an astringent lotion may be applied, to endeavour to prevent its growth. Sometimes several grow in the nostril; if the tumour be thrown much back into the throat, a ligature should be made round it, which is thus effected: Take a canula, long enough to reach to the fauces; carry the ligature, with a noose in it, & slip it over the tumour, conveying it as high over the polypus as possible; then withdrawing the canula the ligature is to be tightened by means of a torsion iron: Or, the canula may be twisted round so as to tighten the ligature; & then leave the canula in the mouth, the ligature being fastened to it; in this case the ligature should be made of wire; but this cannot cure the disease; for much being left in the nose, it will grow again. Sometimes, the seat of the tumour being accurately ascertained, it is cut off with scizzars; & then drawn out with forceps; but unless caustics or astringent injections are used it will grow again. It may be calculated that, taken collectively, 3 in 4, by whatever means extracted grow again; it would therefore be right for the Surgeon to encourage the hope of a temporary relief only.

The hyaline polypus also, sometimes exists in the nose, which breaks when pulled in this case, extraction by the forceps

Q2 will not cure; for the roots continue, it will grow again; the mineral Acids, or a Solution of Iodine may be employ'd, but the use of the forceps is improper.

In Scrophulous Children, tumours often grow from the turbinated bones, which are red & flaccid, like an elongated moulta; & which is, in fact, an elongation of the membrane covering the turbinated bones; it usually exists in both nostrils; & it is useless to remove it by the forceps, as much pain & hemorrhage is occasioned; while the constitutional remedies for Scrophula are employ'd, a Solution of the muriatic Acid, or of Argentum nitratum, may be applied to the part; or it may be scarified; it is not dangerous, & diminishes as the general health improves.

Cancerous polypsi sometimes occur, about the age of 50 or 60. it easily bleeds, is painful, livid, & grows faster from attempts to remove it; which also occasions more pain & constitutional irritation - scarifications & Opium are most likely to give relief; but this can only be temporary -

Orchitis

There is a disease of the testis, in which a fluid collects in small cysts, which take the name of hydrocele; ~~hydrocele~~ ^{hydrocele} is very different from the true hydrocele. The testis enlarges, & the fluctuation is distinct: it begins in the Epididymis where it is united with the superior & ^{posterior} ~~anterior~~ part of the testis, & passing along where the vasa ~~deferentia~~ ^{deferentia} are situated; its progress is gradual, & the disease has existed an year or more, before the patient becomes anxious about it; it is accompanied with no pain, unless it be large, when the patient experiences the pain of distension; & tho' all the testis is affected, it never affects the spermatic cord. On cutting open a testis of this sort many cysts are observed, of the size of a pea, or a little larger, each containing mucus, like that which proceeds from the nose - when these cysts suppurate, as is sometimes the case from bluntness, considerable pain is occasioned. This disease is often mistaken for hydrocele, but is known, by the fluctuation not being so extensive as in hydrocele; & by its preserving the form of the testis, hydrocele forming a pyriform tumour; its weight also is greater than hydrocele, & therefore a bag truss is sooner required - the Epididymis may be distended from the body of the testis. It is a disease of young people, usually occurring from 20 to 30 years of age; but has been known to occur so late as 49. It is sometimes the wish of the patient that the testis should be removed; the operation produces no effect, & the disease does not return.

94 The true Schirrhous is very rare; not one in ten of the diseases requiring the operation, is truly cancerous; it is known by an excessive marble like hardness; it commences in the testis, the whole substance of which is diseased, before the epididymis is affected. It is slow in its progress, & the testis is rarely enlarged; on cutting thro' a testis thus diseased, it is found to contain cartilaginous parts; after the testis & epididymis have become cicatrized, it passes along the spermatic cord, forming knots in it, & causing enlargements of the abscesses in the loins. When the spermatic cord is knotted, no operation will succeed - it has even been known to prove fatal.

Cancer is of two species, the firm or schirrhous & the pulpy; the latter is most rapid & most frequently affects the testis; it commences in the body of the testis, connected with the epididymis, first feeling hard; but when it has become extended thro' the body of the testis, it feels soft, like a full sponge; when it has passed thro' the testis, it soon goes thro' the epididymis, & spermatic cord, & soon produces tumours of the loins; these increase in size, & soon produce death, tho' the testis be removed - the vas deferens has been known to be also affected with tumours. The tumour in the testis consists of sturgy coagulable lymph, easily broken down; coagulated blood is found in it, effused from prepuce or blood. Persons subject to this disease, have a very sallow complexion. In one case, where the cord appeared healthy, the operation was performed, & after the wound had healed a fungus appeared; this was taken out, & the wound healed; after this the

Patient from being a fat man became very thin & his legs
swollen & he died - tumours were found in the veins of the same
nature as that in the testis; the cava was diseased, the right
iliac vein obliterated, & the left $\frac{3}{4}$ obliterated, from pressure
of the tumours. If the operation be not performed as soon as
the complaint commences, it will not succeed. It is a disease
of young people -

In scrophulous inflammation of the testis, this
gland is hard, enlarged, & without pain it begins
in the extremity of the Epididymis; the progress
of the complaint is usually thus - a man of a scrophulous
habit catches cold; the epididymis becomes enlarged, & this
enlargement extends to the testis: by rubbing in mercury
& the application of leeches the disease is reduced; but
he again catches cold when it reappears; the same reme-
dies are resorted to, but with not such good effect, as in
the first instance; each time he returns to his employ-
ment, the disease comes on each time becoming worse, so
it is always confined to the part yet it becomes so trouble-
some that the Patients often wish the testis to be removed.
The appearance of the testis is the same as a gland
of the neck enlarged from scrophula. The enlargement
is occasioned by a deposition of coagulable lymph be-
tween the ducts, & sometimes scrophulous matter exists
in the centre of the inflammation. If it goes on & is suppu-
ration it, induces a fungus. The operation is performed
by making an incision thro' the scrotum 2 an inch from the

40. Now, carrying the incision thro' the tunica ^{vaginalis}
albuginea, & across the testis, closing the scrotum by sutures
the disease does not return.

Operation

Begin the incision from the upper part of the abdominal
ring, carrying it along the spermatic cord to the lower part
of the scrotum; the incision should be continued into the
anterior part of the testis itself to avoid mistaking hydro-
cele or tumour with thickening of the tunica vaginalis.
Diseases requiring the operation; as was the case once with
an eminent Surgeon - then laying the cord distinctly
bare, the sheath is to be cut open, in order to detach it from
the surrounding parts; it is unnecessary to tie the cord
as a whole, & it is attended with severe pain. The cord is to
be cut thro' gradually; when the spermatic
artery is divided, it is to be secured before we proceed;
carrying farther, the artery accompanying the vas deferens
is divided, which is also to be secured: when the cord is thus
cut thro', the testis is to be drawn outwards, cutting it from
the cellular membrane behind. Three ligatures at least
should be made on the scrotum.

DISEASES of the Breast

11

The female Breast is subject to the same irritated tumours with the testis; a number of little tumours, from the size of a pea to that of the tip of the finger, form in different parts of this organ. They are unattended with pain at first; as they approach the surface, they have a blueish appearance & their contents are glairy; at last they inflame & ulcerate, discharging a glairy fluid mixed with pus, & forming sinusses, which never get a cancerous appearance. The removal of the breast becomes necessary only from the trouble which is occasioned by their frequently breaking; & not from any danger as the disease does not proceed by absorption. In a Woman in Guys Hospital this disease & Schirrus were united. Sometimes a large cyst of this kind is found in the breast; a young Woman in Guy's Ho^s between 20 & 30 years of age otherwise healthy had a tumour in her breast. W^r C was persuaded that it was not cancerous, & therefore ordered soap plaster to be applied; she quitted the Hospital, but returned after a few weeks, requesting the operation might be performed, the swelling having much increased; from the appearance of the breast, W^r C was still induced to think it not cancerous, he therefore passed a lancet into it & discharged about 5^{oz} of a glairy fluid, the swelling entirely disappearing, the wound healed; the fluid having again accumulated, an injection of wine & water was used, as in the case of Lydwale, which brought on the adhesive inflammation, & the Patient was radically cured. But it is proper to state, that this is the only case, in which

98 Mr. L has seen a case thus affected - The cyst is not
solid, of the hydatid kind, & is sometimes cancerous.

A Woman had a fluctuating tumour in the breast; the fluid
was discharged by the lancet, & the cyst injected: a fungus
sprouted up from the wound which became cancerous, & the
woman died.

The true Schirrus is a hard tumour like marble, com-
mencing imperceptibly, & usually discovered by accident;
such as bleeding at the nipple &c. - It often takes its origin
from a blow; but a blow will not produce it unless there
be a tendency to it; its growth is slow, & not regular proce-
ding by occasional attacks of inflammation & pain, followed
by an increase of size; it then remains easy until the next
attack of inflammation; the pain is of a peculiar kind; at first as
if a lancet was darting into it; & when it has made some pro-
gress, it is as if a hot body was in the breast; the pain
extends to the axilla, tho' there be no enlargement there; it even
reaches down the arm to the fingers, & up to the mastoid process. This
is increased prior to menstruation, & is relieved by it. The
tumour, which was before moveable, becomes after a few weeks
adher'd to the skin, causing such a puckering of it as to re-
semble a cicatrix; & this indicates that the disease is pro-
ceeding by absorption; in its progress also, it adheres to the
pectoral muscle; & in a case lately operated on at Guy's
a large part of this muscle was oblig'd to be taken away -
it next extends into the axilla, or chest; if on the other side
of the nipple
The former known by the enlargement of one or more of the

absorbent glands there; if between the nipple & sternum ⁹⁹
forming the course of the internal mammary artery & vein for-
ming knots round these parts. When these last mentioned
glands are affected those above the clavicle also, are often in
a similar state. From the axilla the disease affects the
glands about the pectoral muscle & clavicle; before the breast
ulcerates the tumour is of a livid color, & the veins in the ne-
ighbourhood large; when ulcerated it discharges only a bloody
ichor; the granulations are unequal; shooting into fungus in
one part, & depressed in another; a cancerous surface is never
tender to the touch; the edges turn out, having no disposition to
contraction; on cutting open a cancerous breast part is
found to be cartilaginous, the lactiferous tubes containing a
curd-like matter. The time of life in which this disease is
found to be between 35 & 50; but W.C. has seen it as early as
27. It is most frequent in those who have never given suck,
tho' instances have occurred where the Patients have suckled
many children. It is more frequently met with in the left
breast than in the right: perhaps in the proportion of 3 to 1.
It is found, in a great many instances, to affect nearly all
the females of a family.

The pulpy Cancer is quick in its progress, & extends by ab-
sorption: a Woman thin, but having an healthy countenance,
had a small tumour in the breast; after a time she became
sallow, the tumour rapidly increasing in size, & ^{a flux} ~~an~~ ^{was} ~~was~~
was evident; this is very apt to cause mistake, but

180 Having no doubt with respect to the nature of the con-
stition, Cooper removed the part; & she was soon in
apparent good health; the Disease however returned
in a few months the tumour being much larger than
at first. There was pain in the chest, the axilla was not
affected, the tumour being near the sternum; the tumour
was taken out, but the Disease again returned; after a time
a fungus grew out from the breast & the Woman died. On
dissection the lungs which were covered with fungus
tumours, were found ^{adhering} to the pleura; the matter had been
taken up & circulated with the blood, & then deposited on
the lungs; it is plain that the fungous tumours were thus
produced, & not from vicinity to the original diseased part
for when the cancer has been found in a more distant part
the lungs have been affected.

There is an inflammatory tumour of the breast common
in young & delicate females, whose feelings are warm, but
whose desires are not gratified; there is no swelling of
the mammae, but they are perfectly healthy in other respects;
here the operation should be by no means resorted to; it
is distinguished from scirrhus by its not being limited &
defined, losing itself gradually in the breast; it is very
tender to the touch, which causes a great increase of pain
which sometimes continues for several days; the pain does
not usually extend to the arm, tho' this has been known to

lapper. It is easily relieved; leeches should be often
applied; cold silk or soap & lather, are useful; pur-
ges should be repeated once in about 8 or 10 days care
being taken that they do not weaken the patient; nym-
& steel will be found to be the best remedy, purging
if heat of skin be produced by it. But the best remedy
& that which is most grateful to the patient is lacti-
mon: the disease has never been known to con-
tinue after the secretion of milk. It never de-
generates to scirrhus.

The fungus hematodes sometimes attacks the breast;
& also steatomatous tumours; an extraordinary instance of
this sort occurred not long since. ~~The tumour~~ it was seated
under the pectoral muscle; the first incision included a
part of the integuments 32 inches in circumference: about
two lines thro' this the pectoralis appeared & when this was
divided the tumour was taken out; it weighed 14 lbs 10 3

The Operation

A semicircular incision is first made on the upper part
of the tumour thro' the vessels which supply the breast. The
Assistant placing his fingers on 2 of these; the Operator then
proceeds observing the pectoral muscle; unless the tumour is
large, no ligature is necessary; but the Surgeon may secure
the mammary & thoracic arteries by ligature; if enlarged
glands are also to be removed, the cellular membrane between
them & the removed portion must also be removed; & divide
the piece is apt to return. Tho' this Operation is

102 sometimes successful, it more frequently fails; absorption, or a cancerous diathesis causing it to form in another part. If the operation be performed early, it may succeed; but if not early, it will come on again, the pectoral above the clavicle becoming enlarged, the breathing affected, the patient wastes & dies.

Ascites

Dropsy of the abdomen is of two kinds. acute, & chronic. The latter is sometimes called encysted dropsy. Acute begins with a distention of the lower part of the abdomen the clothes becoming loose in the evening, on account of the distention; it is unaccompanied with pain, when the ascites is considerable. The lower extremities are edematous; the fluctuation is distinct on placing the hand on one side of the abdomen & pressing suddenly on the other. It often produces general dropsy. It is caused by an enlargement of the liver, pressing on the vena porta; which prevents the free return of the blood by the vein, a great quantity of fluid is thrown out by the exhalants; the peritoneum becomes thickened, & even tubercular, contracting adhesions, if the disease continue long. Grief, or great excitement of mind, & the excessive use of spirituous liquors, will increase this enlargement of the liver; much blood is retained in the stomach & bowels which the vena porta not being able to

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return the liver inflames & bursts again on the
surface the obstruction which was before removed becomes
permanent. Grief also, operates by causing an
enlarged circulation in these veins. It is more frequent
in Men than in Women.

The ovarian dropsy is as frequent in Women as the
ascites is in Men; it exists in the ovarium, or in a hydatid
on the surface of the ovarium, or some times in both.

It begins by forming a tumour on one side; attended
with little pain; when the pressure is high, there is a little
tenderness; but when low, a retention; as it enlarges it rises
in the abdomen; it long continues moveable, the intes-
tine being often before it; or that anoint the operation
should not be performed early; & if the omentum protrudes
it causes such inflammation as to destroy life, in many
instances; when the tumour is fixed the operation may be
performed. It commences in several cysts; but as the ovary
is enlarged, they are broken down, & joined in one; if therefore
the operation be performed early, only partial relief will be
obtained. The fluid is usually serous, but is sometimes like
beach, or coffee grounds or thick &ropy, so as to come with
difficulty thro' the canula; hair also is sometimes found
in the cyst; the greatest quantity of water Mr. L. ever drew
off, was 12 gallons & a pint; the usual quantity is from 30 to 40
pints. The fluctuation in encysted dropsy, is not so evident
as in Ascites; & therefore care must be taken not to mis-
take other diseases for it. Tromphalos is apt to follow

10th happens at the same. The operation should either be performed on a level below or above the level according as the tumour lies.

In the operation for ascites, the lancet is preferable to the trocar; it is to be passed thro' the integuments, & linea alba, & when in the abdomen, the point is so to be raised & depressed as to make the inner orifice as large as the outer; Mr. C. has operated 22 times in one patient, drawing off 18 pints at each time. In the encysted dropsy, if the cyst be thin a lancet may be first used, & then the trocar & canula; if the cyst be thick, the trocar must be employed.

Mr. Guy's method of leaving the canula in the wound, untill the water is discharged promises to answer well; it occasions the adhesive inflammation which effects a permanent cure; Mr. Cooper would have been afraid to use this practice had not Mr. Guy related cases sufficiently striking to convince him - he has not yet operated after this method.

Calculi

are found in 5 different situations in the urinary organs; in the 4 series the ureters bladder prostate & urethra; but the prostate not being connected with the urinary, but the seminal vessels, ought not to be numbered. The symptoms of a stone in the kidney are: a dull pain in the loins of the affected side; which when very severe, causes the stomach to sympathize - pain at the upper part of the crista ili - & tenderness of the back when rubbed; & this is sometimes so great, that the coat cannot be touched, without great pain sometimes the very rarely, an abscess is formed in the loins; & a cure is affected by the discharge of the calculus. The pelvis of the kidney has also been glued to the colon, by which the calculus has been discharged; but the fistulous opening remaining, the irritation of the urine is such as soon to destroy life. If a stone remains in the kidney long it takes the form of the pelvis infundibulum; as is remarkably seen in a preparation at St Thomas' Hospital - On any considerable exercise, blood is frequently discharged from the penis, mixed with the urine - or pus. Some times if the constitution be not irritable, it will remain for life.

Calculi in the Ureter, are rare; & M.C. has seen but 3 or 4 cases - vide Cases in Surgery p 56. The symptoms are - pain in the direction of the ureter - pain in the thigh which is drawn up by the contraction of the cremaster; also pain on the inner side of the thigh, in the direction of

100 The anterior crural nerve; but not thro' its whole extent; the quantity of urine is considerably diminished, seeming as if from sympathy the other kidney did not secrete its ordinary quantity. As the calculus drops into the bladder the symptoms suddenly change; stilling-dision immediately takes place; & also a violent, hot & burning pain at the lips of the urethra, or opposite the perineum. When the calculus has not existed long, the urine is not altered; tho' those who are subject to stone rarely have uric acid in their urine; when the calculus has existed in the bladder for a considerable time, the urine is whey colored, an alteration having taken place in the mucous membrane from inflammation; & where the inflammation has been great & the mucous membrane is absorbed, pus is mixed with the urine. In this case the Operation will not succeed; for if the Patient recover calculi will be again produced - In those in whom the mucous membrane is ulcerated, there is a great tendency to form stones, & irregular pieces like sugar, are often produced. Much may be learnt from the manner of voiding the urine; at first it flows freely & without pain. But before the whole is evacuated, there is a violent pain & sudden stoppage; the bladder having contracted round the stone. exercise increases the pain; the patient cannot ride in a rough carriage - on horse back it is not so bad; but walking quickly down stairs, or even the act of going down, will sometimes cause pain at the extremity of the

penis from the change in the position of the stone. 107
In Children the prepuce is elongated from their often pulling it. In Persons who are subject to fits of the stone, the bladder is at one time in an irritable state, & at another time not - delivants will relieve this. Sometimes the abdominal muscles are in a state of violent spasm, & at others much relaxed. Mr. Forster has in his possession a stone weighing 25^{lb}. at Trinity college there is one 33^{lb} - 36^{lb} but the largest ever known was taken from a Gentleman lately deceased; it weighed 44^{lb} 3^{lb} 6^{lb} apothecaries' wt. - in its long axis it was 16 inches in circumference; in the short axis 14 inches; its diameter in the long direction was 5¹/₂ inches - in the short axis 4¹/₂. The greatest number we ever saw in one subject, was 23. They were yellow, & each about the size of the top of the finger. Calculi are of various forms; if large, they sometimes take the form of the bladder; or of the bladder & urethra. When very large they give but little pain, but the urine trickles off insensitively - in general the smallest give the greatest pain.

150 calculi were analyzed, & the following is the result:

- 16 of Uric, or lithic Acid
- 45 Uric acid, with a little phosphate of lime & ammonia.
- 66 The Phosphates, & a small relative proportion of uric acid.
- 12 The Phosphates entirely
- 5 Uric acid with the Phosphates, the nucleus oxalate of lime
- 6 oxalate of lime

Those composed of uric acid have the color & texture of wood, & are soluble in the alkalis. Soda water will

108 Here be of service; & Aqua Kali puri & opium
will be found to relieve either the inf. ammation from
the stone, or the operation. This sort can be destroyed by
the blowpipe. The calculus formed by the phosphate
of lime is white or yellow, & soluble in the mineral acids.
That formed by the ammoniacal magnesian phosphate is a white
semi-transparent crystal; & if phosphate of lime enters into its com-
position, is fusible & vitrifiable. The mulberry calculus is
formed of the oxalate of lime; it is slightly soluble in acids, &
can be calined by the blowpipe. The calculus formed by the
urate of ammonia is rare - any extraneous substance,
even a drop of blood, or mucus, will form a nucleus.

Lecture 24th

The size of the sound should be according to the age
of the Patient; if it be too large, it cannot be moved near to touch
the stone, if it lies near the urethra; & if it be too short it will not
reach the fundus of the bladder; The Patient should be first
examined, when the bladder is distended with urine; if it cannot
be then felt, he should be examined with the bladder empty; & if
that does not succeed, he should be examined standing -
To know if the stone be lodged in a sac (which however is rarely
the case) he should be examined in a recumbent posture; He desir-
ing him to change his situation the stone will be felt to fall.
If the prostate be enlarged, the finger should be introduced up
the urethra, to push it forward, that it may be felt. When it is

ascertained that there is a stone in the bladder, we must ¹⁰⁹
be determined by the general health whether or not it is pro-
per to operate: if there be much pain in the loins especially
if in one, & pus is discharged with the urine, the kidney is diseased,
& the operation will not succeed - it will also be extremely
dangerous if the internal membrane of the bladder be diseased.
The difficulty & danger is greater in fat subjects - indeed
they are improper subjects for any operation. If the patient be
middle aged, athletic, he should be bled & purged - & in the morning
of the day on which the operation is to be performed a glyster should
be given, to evacuate the feculent matter, & remove the danger of inflam-
ming the intestines. Operation

The Patient is to be placed on a table about 3 feet high; 3 ban-
-gers are required; 2 to be fastened round the hands & feet, & one to
be passed round the neck, & under the knees; in children 2 are suf-
-ficient. The staff is then to be passed, which had better be too
long than too short - a scalpel is used to make the incision in
to the staff; it should have two edges to cut open the urethra with-
out turning the knife. A sharp gorget is used by most surgeons;
but Mr. Cooper thinks it a very improper instrument, & that a beak
knife is far preferable. If the gorget be used, when it is introduced,
the finger should be run along to feel if the groove of the staff
be laid open all the way into the bladder; in which case all
is right - but if it has gone into the rectum, & if it does it is

140 more owing to the instrument than to the operator - it is to be again introduced thro the groove; the size of the forceps should be according to the age of the Patient; & should be curved when the stone is low; the scoop & broad forceps are to be used when the stone is broken. The following is the result of Mr Cooper's practice, when the knife was used instead of the forceps - a Woman - a Man aged 30 - Child 8th - Child 1.9th - Child 5 years - Child 4 - Child 12 - Man - Boy 16 - Man 58 ^{Man 62} - Man in Guy - all recovered - one Man died 6 weeks after the operation; in general it may be estimated that 2 die in 15.

The first incision commences at the symphysis pubis, & is carried down opposite the middle of the urethra, laying bare the accelerator urinae muscle - then pushing aside the ^{cut} ~~base~~ of the penis with the left hand, an incision is to be made thro the membranous part of the urethra, on the staff, dividing the transversi perinei, & the artery going to the bulb. The knife is then to be used; its back is to be laid in the groove with the edge turned obliquely downwards between the horizontal & perpendicular position, in order to avoid wounding the internal pudic artery, & to give room for the extraction of the stone; the knife being introduced, in withdrawing it, it is to be carried laterally, in order to dilate the wound; when the aperture is made (which should not be large) the finger is to be introduced to feel the size of the stone, making the orifice of

the size necessary to its passage. Then laying it hold with the
the forceps which shall be small it is to be extracted perpen-
-dicularly, in the direction of the wound, pressing a little on
the joints of the forceps, to keep them down from the pubes. It
must be drawn out gradually, else the parts may be torn.

If the gorget be used, it is of no advantage to leave it for a
guide to the forceps; for they can pass no where but into the bladder.
We should never operate without feeling the stone at the time;
for sometimes the staff has ruptured the urethra; in consequence
of which the cutting instrument has gone between the bladder
& rectum; & if the staff be not in the bladder, from enlargement
of the prostate, the operation will be defeated. When the stone
is confined in a sacculus, or when the bladder contracts &
forms an hour glass, it cannot be brought away. When it is
too large, it may be broken by an instrument, made after
the manner of a ~~long~~ forceps, that acts on the principle of Leam.
Mr. Hearle has lately invented an instrument for piercing
the stone, the more easily to break it.

Lecture 25. Sacculi are very rare; in young Subjects, if they
can be reached they may be divided with a probe pointed bistoury;
but this cannot be done in the adult. Age & good health, is no
objection to the operation; but there is additional danger,
if it be performed under 2 years of age, the subjects dying often
from convulsions. If the micturiting lands are diseased it will

112 prove fatal. The stone should not be grasped too firmly, as it is very apt to break. After the operation the attention must be directed to the inflammation which often attacks the bladder. if the abdomen be painful, leeches should be applied to the region of the pubis; & also a fomentation of chamomil flowers. K. may be employ'd, as it may be requir'd; & after purging & giving warm glysters, to act as an internal fomentation, the aqua calida Turci & opium should be given.

Calculi in the prostate gland are always compos'd of phos-
phat of lime; & are usually about the size of shot; they have
never been operated on; but might with safety in many cases.
Stones in the urethra are usually situated at the mem-
branous part; before attempting to ~~extract~~ extract them by an
operation, the following method should be tried; pass
as large a bougie as the passage will admit of, to the stone;
where it should be confin'd several hours, so as to cause
the urine to accumulate & distend the sac; withdrawing
it after five or six hours, the patient should be directed
to force; & in many cases the stone will come away.

When the stone has been small, & has been forc'd before the catheter
into the bladder in attempting to draw off the urine, & not being
aware of the cause of the retention; it has been brought
off by making water.

When we are about to extract it, the stone must fix'd
by the finger & thumb, while we cut down on it; if it be

situated opposite the scrotum in an adult it should
be pushed back, in order to prevent for an introduction of
urine into the scrotum would produce dangerous consequences.
In children the incision may be made thro' the scrotum;
if the stone be near the glans, it is easily extracted by incision
- if the attempt be made with forceps it will only be pushed back;
but a small scoop may succeed if very near the orifice.

Amputation. of malignant.

Previous to the operation the tourniquet must be applied,
at the middle of the inner side of the thigh, when the
lower extremity is to be operated on: at the middle of
the upper arm for the upper extremity: but if it be required
higher than this, a key should be used with a roller passed
thro' the bow; so as to compress the artery as it passes over the
pulvis; or to compress the subclavian, above the clavicle. The
latter is the most difficult, as the patient shrinks from it.

If the bone is to be amputated at the second or third
joint a circular incision is first made below the joint;
& then a longitudinal one each side each reaching to
the joint. Taking care not to cut the tendon thro' the in-
cisions are repeated so as to make a double flap,
& the joint cut thro' at each side: if there be not a

the sufficient quantity of integument left the cut flap
will be sufficient. The great point is, that the cut flap be
drawn back from the finger & the joint on each side, so
that they will meet above & the same below, dividing
the ~~cut~~ tendons; then having dissected back the flaps, &
formed the joint is divided from above there being no in-
terference to prevent it. The ~~axillary~~ ^{axillary} artery should be secured
by ligatures; if the two neighbouring fingers be fastened
together so as to press upon the amputated part, deformity will
in a great measure be prevented.

In the amputation of the foot across the metatarsal
bones first make a circular incision; then cut back
on the inner & outer side of the foot & dissect back the
flaps divide the tendons close to the tarsal bones, & the
muscles to the sole of the foot; & saw thro' the bones; then
the flaps must be brought together.

The leg has been amputated by the flap. To give
it a thick cushion to bear on; the flap should be long
enough to cover the part; the catheter is thrust thro' the
^{at the back last} ~~to the~~ ^{carried} downward to the proper extent, & then brought
out at right angles with the part cut down, for
if it be brought out gradually its thickness will prevent
it coming; a circular incision is then made, & the
flap is left leaving a small portion of the integument round
it over the extremity of the bone. The bone is then cut
off, the flap brought over & confined by sutures.

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This operation may do very well for those who are to walk but little; but those who walk much find that they cannot bear the pressure, & therefore prefer preparation on the knee. If after the operation there be hemorrhage, it is scarcely possible to get at the artery & the tourniquet applied to the artery or the flap adjusted back.

The usual way of amputating the leg is, on hand level below the knee, or even, also two inches for the legaments to cover the stump. A circular incision is first to be made thro' the integuments, without dividing the muscles; the integuments adhere particularly on the tibia, & fibula, & must therefore be carefully divided; the second incision is thro' the muscles; then divide the muscles below the bones by the catline, & saw the bone; the anterior & posterior tibial arteries always require tying, & the interosseous sometimes; the ligatures for this purpose should be small, & what is called French twine is the most proper; one end of the ligature should be cut off; the integuments are then brought together, leaving a small space for the passage of the ligatures; a roller is then placed over the stump, to compress the small vessels; but much bandage is improper.

In amputating above the knee, we should not consider that it is for a disease of the joint; for there is a disease, or more properly, an inflammation of the vessels of the joint, which is very subject to be mistaken in the disease & of this all

be repeated every 4th or 5th day, & repeated
 as often as the wound will allow. It must therefore be made
 above the last. The integuments at here is the tendon
 of the muscle & triceps, & the bone is therefore be carefully exposed.
 The muscle is then to be cut thro' & the bone sawn; care
 should be taken not to dissect the integuments back too far,
 for the muscles at this part ~~and~~ ^{will} retract very much,
 the bone project much. It may amputate by the flap above
 the knee, when it cannot be done in the common way.

Mr. Cooper never saw the operation at the hip, & never heard
 of it being successful. Tho' it might succeed when the
 parts are much wasted.

Amputation at the wrist is often necessary; first feel
 for the stiloïd process of the radius, which is the point
 for the introduction of the knife. Begin with a circular
 incision thro' the integuments, at the root of the thumb.
 Draw them back to the stiloïd process, & introduce the
 knife between the radius & scaphoid bone; the stump will
 be neat, & heals well. If the amputation be performed
 just above the annular ligament, the parts will struggle.
 The amputation of the forearm is performed like that of
 the leg, below the knee; of the upper arm like the thigh.

In the amputation at the shoulder joint, the first incision is to be made into the axilla, for the purpose of securing the axillary artery; the plexus of nerves is laid bare which must be carefully separated from the artery & the artery secured; this mode is preferred on account of the difficulty of securing it by pressure; a flap is then to be made of the intermuscular & deltoid muscle, on the outer part of the arm; then make an incision round the head of the bone; cut thro' the capsular ligament, & take out the head of the bone. The parts are to be brought together by suture.

As the glenoid cavity of the scapula is most frequently partaking of the disease, it is best to remove it also.

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1800

Gonorrhoea

Begins with a sense of titillation in the urethra, as if a drop of urine accompanied a short way within the passage; the lips of the urethra are observed to protrude a little; & are slightly inflamed; & a slight mucous discharge is perceptible; in a few hours the irritation in the passage increases to pain; the discharge becomes purulent or sometimes green white or bloody; & sometimes flakes of coagulable lymph pass from the urethra when the discharge is large. The pain is seated an inch within the urethra & extends to the perineum; & this, tho' the inflammation should extend some way down. The urine is sometimes so sore, that it is retained in the bladder thro' fear of the pain in descending it; sometimes on account of the swelling of the lining from portions of coagulable lymph in the urethra, the urine is forced, or discharged in two streams; the penis is frequently erected especially if there be urine in the bladder; & is also swollen from an affusion of coagulable lymph tying it down. The laminae become enlarged, forming small knots; which begin at the base of the perineum, & pass gradually downwards, often becoming inflamed & suppurate; they are rarely seen before the urethra is closed; at this time the coagulable lymph, effused

into the cellular membrane of the prostate forming the prostatic sinus. The glands on the dorsum, perineal & also those in the urethra, become inflamed, & enlarged; & there is seldom any degree of gonorrhoea without a sympathetic hæmorrhoid also often extended along the raphe to the perineum.

When the inflammation eases in these parts we must not suppose that the disease is cured; symptoms of irritation in the urethra are soon perceived, as if a drop of urine remained at the neck of the bladder; & at this time the seminal fluid on exercise or exertion the testes become inflamed. The testes ought to have been suspended prior to this in order to prevent swelling; but if before neglected, it must be done now. If the Patient tolerates in life the prostate may become enlarged causing retention of urine, which is difficult to resist, spasms also, of the muscles about the prepuce of the penis, & prevent our stopping the discharge; this symptom is common in irritable habits. The Patient has frequently a desire to take water; especially on passing near a place used for that purpose; he often also suffers much from pain in the bladder.

In the first gonorrhoea the patient may suffer all the symptoms. In the second they are less likely to happen & after a few attacks the symptoms are more slight; so that sometimes there is nothing but a discharge. The color of the matter will be altered to judge of the violence of the complaint; thus when the discharge is white there is but a slight degree of inflammation; when yellow

120 it is *leija*; but when it is bloody, the inflammation is
very severe.

This disease commences its attack from far from
long after receiving the infection; it has however been
known to come on in 24 hours; & if we may depend on the
Patients word, not until several weeks have elapsed;
but Mr. Sayer is inclined to think that there is some mis-
take in this; for Patients who have been subject to gonorrhea
may have a discharge which they may mistake for it;
but which is not infectious; there is usually stricture in these cases.

The seat of gonorrhea is in the *lacuna magna* & the
urethra; it is situated about an inch from the orifice of the urethra,
or the *corpus spongiosum*; no ulceration takes place; & if there
is an abscess which breaks externally, it does not heal.
It is an inflammation in the urethra; with an effusion of
urine between the mucous membrane & the corpus spongiosum;
forming a thickened state of the parts; sometimes the inflammation
extends even to the neck of the bladder.

The mode of communication is: an inflammation commences
on the tip of the urethra, from the application of the gonorrheal
matter; this extends downward to a more vascular part; it is
highest at that part which is most vascular - where it fixes; &
only extends to the bladder when it is exudative.

The progress of gonorrhea can be sustained by consti-
tutional disease; returning when that disease recedes.
The disease is most difficult to cure in scrophulous habits;
in which also gleet is most frequent. Also the disease is
not usually violent in its commencement or progress in
such habits.

Scrophulous

As mercury ought to be used for the purpose of affecting the
constitution, for it will never cure this disease; & Patients
are brought into these Hospitals with syphilitic gonorrhea,
who after salivation for a month, by which the Syphilis is
cured, still labor under gonorrhea; which must be cured
by other remedies; mercury may be given as a cathartic
with other purges; but even here it may be dispensed with.

The Disease may be divided into three stages with respect
to the method of cure: in the inflammatory stage, opium &
extract of thartar should be given at night; & a powder con-
sisting of Magnesi vitriol. ʒij & nitre ʒi with a little gum
Arabic, twice a day; & this is usually sufficient to cure the
inflammatory stage in an healthy constitution - but
perhaps in that which is intractable. If however the
inflammation continues, ʒij & r or xx Aqua Kali puri with
opiate two or three times a day, will be of considerable ser-
vice. If this does not prove successful, the hot bath or

those which are stronger; this is to be continued for three 123
or four days, when it is to be substituted for that which is more
astringent. but in using them, the Balsam. Sticta is still to
be continued. the next injection may be made of $\frac{1}{2}$ of the ac-
tate of zinc, & $\frac{3}{4}$ of boiling water; for in cold water it will
not dissolve. Injections of preparations of lead have been
used; but they are more apt than others to produce stinging,
on account of their greater astringency. Corrosive sublimate
has been recommended as an injection; while any inflamma-
tory symptoms exist it is highly improper; but when the patient
has had the disease often, it may be used in the quantity
 $\frac{1}{10}$ in $\frac{3}{4}$ of water, with advantage. Aqua Calicis
alomal: has been used; it is safe, but its effects are slow; the same
may be said of an Injection of from $\frac{1}{10}$ to $\frac{1}{15}$ of calomel & $\frac{3}{4}$ of
Gum arabic. These injections should be used several
times in the day - the first thing in the morning & the last at
night; it will also be proper to do it when the patient may awake
in the night; otherwise as much is lost in the night as is gained
in the day. The best syringe is the elastic bottle & pipe; but
a long pipe is improper; in using the Injection, when the
nostril is wiped round the pipe, it should also be kept
near the nostril, to prevent its falling down, & exciting inflam-
mation; there is however little danger of this. It is best to al-
terate the Injections every two or three days; & there is more
advantage in the change than in making them stronger.

124 If the good effect of the frictions are not soon apparent
their use should not be persisted in; & a supple diet in
composition of 12 parts of Raisins of Sun & oil 3; mixed with
the Balsam according as the patient is irritable or not should be
used. The free use of the Balsam of Raisins is apt in some
constitutions to bring on an eruption upon the skin the red ap-
pearances, with a white margin; with fever; in this case it
should no longer be given.

Section 20. Strictures in the urethra.

The existence of a stricture is known by a frequent desire to urinate;
the stream of urine is frequently disturbed during the night; at times
it is in a spiral direction; these symptoms are observed before there is any
inflammation in the verge of the stream; this however soon takes place &
it is divided into 2 or 3 streams; & in the act of discharging it often rises
above the glans; as the stricture advances, the spasms of the urethra
inter-vening muscle causes it to be discharged in a broken stream; in
the advanced period of the stricture the patient has not the power to retain it some-
times tho' rarely it is suppressed altogether; in these cases for the most
part there is usually some disease added to the stricture. The urine
is often a white color indicating an inflammation of & secretion of
pus from the mucous membrane of the bladder; also usually
accompanied stricture, staining the linen like the white of eggs. unless
the patient has used much exercise or has been intemperate when it
is yellow. When the stricture is considerable the urethra behind it is
also frequently the lacuna, become enlarged from the pressure of the

urine, from the same cause. These in time grow so large, & the urine is
infiltrated into the cellular substance, forming a number of small
externally become fistula; they sometimes take place before the urine
is most frequently in perineo. From frequent action in micturition
the urine the muscular fibres of the bladder become thickened, & this is
followed by a similar thickening of the mucous membrane. This is
a consequence of the inflammation in the region of the neck. The constitution then becomes
affected, known by rigors followed by an hot & sweating fit; & in some cases
these recur tolerably regularly; insomuch that it was sometimes mistaken
for intermittent fever, & treated with bark, which was of very little service,
since it proceeded from irritation in the bladder: irritation in the urethra
does not produce them in the same degree. Stimulant & evacuant medicines
should be employ'd, & are usually sufficient. The ureters & kidneys also
become affected, & have even ulcerated to such extent as to produce death.

Notwithstanding the loaths which we so frequently hear of stricture
are rarely radically cured; it therefore behoves us to be extremely cau-
tious of using stimulants or astringents in the inflammation stage
of gonorrhoea. On Dissection it is common to find the urethra
thickened & contracted as if a cord had been tied round it;
& not infrequently it appears as if a ribbon had been tied round
sometimes they are even an inch long - These are very difficult to
remove; some Strictures arise from membranous bands, & some from
the prostate: There is also a species called the elastic which with

Some suppose it allows to the passage of a bougie, but which
 the next day is found to be of the same size as before, and then the
 bougie be large or small, strict or not it remains of the same
 size. it is not however so apt to close up the passage as the
 other kinds. I remember in the urethra were sometimes a little bit
 of a fungus; but Mr Cooper never saw but one instance of it; this was
 a little, solitary, was seated on the verumontanum. Stricture
 is usually seated at from 5 to 7 inches within the urethra just
 where the membranous part joins the corpus spongiosum, there
 being naturally a contraction at that part; it is seldom that there
 is more than one stricture, sometimes several, being usually the first
 and the first. If the stricture has existed long the penis may
 become crooked; this renders it difficult to cure, & no caustic
 can be used.

Mr Hunter supposed that strictures most frequently arose from
 inflammation beside gonorrhoea, but his reasons are in error.
 Nine in ten of permanent strictures, arise from gonorrhoea;
 the use of astringents in the inflammatory stage, or riding on horse back
 & other vicious are frequent causes; & when a military spirit prevails
 in a country & a great number of young men were in corps of cavalry
 strictures were more frequently met with, than at any other time.
 Stricture may however be produced; & Mr Cooper has seen it in the urethra.

Several Books have been written on this subject & many cases have been been related, that one might be induced to think that every case might be cured; on the contrary very few are cured, & tho' caustic & common bougies are used, very few are radically cured. We must first use a soft bougie & those which are recently made are best for this purpose to ascertain the situation & form of the stricture; the improper ones made on the spot will shew us, which that which is first used ought to be; most strictures, situated at the under part of the urethra, it is necessary to bend the bougie in the form of a catheter, by which means it is easily introduced, & if the point be bent, it will be preferable. When a small one has been introduced, the size is to be gradually increased untill the largest can be passed with tolerable facility; the Patient is then to be instructed in the manner of its introduction; & he should not omit to pass it once in 2 or 3 months, that he may know in what state it remains.

Metallic bougies are not so good as those which are made of wax; as they do not yield to the curve of the passage, occasioning considerable injury & pain; This alludes only to the solid metallic bougies; for those which are hollow are excellent in many cases. We should never use such force in the introduction, as to induce hæmorrhage; for the laceration of the mucous

and is more pre-disposed to strictness. But it can frequently be introduced when the men's wife cannot be made to pass; it is right therefore to try it previous to having recourse to the caustic bougie; it gives the same relief as the common bougie; the cat gut bougie is seldom necessary; tho' sometimes on account of its property of swelling with moisture, & consequently dilating the parts, it is of service.

If then neither the caustic or common bougie can be used, recourse must be had to the caustic bougie; which is a good instrument when used with discretion; but which indiscriminately used, has done considerable harm. It must be large for the principle of it, is to make the urethra of its natural size; & if small it will cause great irritation.

Argentum nitratum is the best caustic, acting on the stricture alone; *Natri peruen* has been recommended; but it does not act faster; & dissolving readily, it burns where it ought not causing considerable irritation; the end of the bougie should be cut off square & smooth; previous to passing it a common bougie a little larger than the other should be introduced; the first time it is pass'd it should be immediately withdrawn; it should never remain more than half a minute; but in this we must be guided by the irritability

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of the Patient; it should not be used oftener than 3
times a week; for if introduced oftener than this it not only
on the 10th made the day before. Mr. Cooper related
several cases in which this instrument produced the
best effects; & others in which the reverse happened;
there is great danger of making a false passage by its
use.

Lecture 7th - Proctitis in Stricture

Enlarged haemorrhoids having given way the urine extra-
vasates into the cellular membrane; inflammation is
induced & the abscess bursts sometimes in perineal swelling
it joins the perineum & anus sometimes before the scrotum,
& sometimes into the scrotum. In some cases it bursts sudden-
ly, but in general it is gradual. For the most part an hard
tumour is first formed opposite the bulb, which is not generally
painful but becomes so after the urine is discharged. The
urine frequently accumulates & causes inflammation &
suppuration & the abscess bursts externally. But in some cases
from going when the urine is prevented from flowing out of
the stricture the urethra bursts & the patient's life is in dan-
ger from the urine being extravasated into the cellular mem-
brane; it is most dangerous when it bursts into the scrotum from
the inflammation & suppuration which is apt to follow.

136 In performing this operation you must be well informed
as to opening should be made into it if the patient cannot
bear it this operation is the same but must be performed.

In such opening is still more necessary in the treatment
of the urethra; for unless this be done with soon follows after
this is generally the case in old people, tho' those who are young
may recover. No incision is however to be made into the
substance; but a catheter is to be passed down to the stricture,
the opening made about an inch behind it; where a finger
will be found. Then having passed a staff the stricture is to be
cut thro'; an elastic gum catheter then to be passed, to keep the
passage open; this instrument is to remain for a few days un-
till the adhesive inflammation has glued the parts together
when a bougie is to be used. It is right to make several
openings into the scrotum to evacuate the extravasation,
squeezing the sides to effect this more completely in order to
prevent the formation of sloughs; eggs dipped in vinegar or the
vinegar itself, should be applied to prevent or to treat
of the sloughs. After having made the incision, the
stricture is to be attended to; for which purpose the caustic
or common bougie is to be used; but the first is alone to be
employed in these cases.

In the treatment of the stricture, the first is alone to be used.

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R. Ry. mus. Hydrargyri "ij"

eg. from 31 July to 31 Aug. - 100 x 100 x 100

to close the aperture; it is not to be used however, before the stricture is open; & the hollow bougie is to be used at the same time. What has been said above applies to the permanent stricture; but there are two others the Spasmodic & the intermenstrual.

Spasmodie striatae

In the accompanying the patient, where the
 urine is free, at another there is more, but it is not
 pain except in the efforts to make water. It is brought on by
 much spirits, by sitting on horse back or by strong sexual
 excitement. The usual first attempt to pass a bougie is made
 is to excite as little irritation as possible, when it is at the place
 where the stricture is situated it should rest a little while before
 being then in a disposition to resist; but in a short time the
 efforts will cease. The bougie will then pass without using any
 force. When it is in the bladder the patient should be directed to
 make several voids, and then, frequently, during the night he will

137 follow it, the same effect is to be expected in catheterizing the catheter.

It should be remembered that the subject of hemorrhoids is very common, & the retention of urine, was considered to exist. The water for it, & ⁱⁿ a quarter of an hour after taking this medicine the water would pass. A gentleman who attended to him from this notice & before, in the hospital, could not be made to pass; he was placed in the cold bath, & after some time the urine was immediately discharged. The cold bath will be found of but little service, although it is not known as to produce syncope; & haemorrhoids, & the same result, & causing some temporary loss of power of service; the latter answers better than pain.

Inflammatory Stricture

It is a very common disease, & takes place after the inflammation of the urethra is healed, & the catheter is introduced with retention of urine, & a very common cause of pain in the urethra; the instrument gives such pain that it is seldom possible to pass it; there is considerable irritation of the accelerator & other muscles near the parts, & the same, & some of pain every 5 or 10 minutes; there are much of this kind of thing; the following are also of service; see

her in germs. The 1st bath. The water is called 133
to the germs—consisting of one part of ammonia to 3 of water; this
is better than a blister, which is apt to increase the disease.
The following has been found of considerable service:

Sax. ciliolata gⁿi
Bⁱⁱⁱ gⁿi
Sax. ciliata - gⁿi
Campophor. - gⁿi *infundibula.*

If the loz may remain at the bladder, when the ure-
ter is in a chronic form; the mercury, mercury with
sassa-parilla, or bark may then be used; but it is best not to
tempt to introduce the instrument - at least not until the
Patient has been placed in the warm bath as in the 1st.

Uriser sometimes join gonorrhoea; producing retention of urine, when the inflammation is proceeding towards the neck of the bladder; & in old people, instead of irritation like a drop of water, their prostates become enlarged; sometimes the inflammation in this gland goes on to suppuration; & frequently in cases of retention of urine, in passing the catheter, it bursts into the abscess & matter is discharged. In old people the prostate is apt to be enlarged & they have not been the subject of gonorrhoea; espec-

134 ally of the organs of generation have been subject
to considerable enlargement. But this enlargement is a
natural process in age, to keep the urine in the bladder,
when the muscles have become weak; in this enlarge-
ment, three tumours are found; one behind the bladder,
one on each side; the urethra, alt., is larger than usual;
some are apt to be deceived, thinking the catheter is
in the bladder, when it is not; no urine flowing, great
irritability is occasioned.

The symptoms of an enlargement of the prostate are: pain
at the extremity of the penis like a numbing of the
tip, & not sharp as in stone; weight in perineum, & fulness
rounds the rectum, preventing the passage of the faeces;
& a sense of distention in the region of the pubis; the urine
is discharged in jerks, & considerable force is necessary for the
purpose; if he forces violently, a little only comes away; but
if he waits ^{it} ~~he~~ dribbles off; there is frequent retention of urine
especially in the morning; for the middle tumour acts as
a valve to the urethra; a quantity of urine having collected,
is forced forward, driving the tumour into the urethra, which
becomes stopp'd up. In many cases the patient cannot
make water without discharging the faeces at the same

time. The urine is usually natural; or it is in
inflammation, when it is white, cloudy; or if the sup-
puration has continued long it smells bad & is coffee
colored; the frequent voiding having driven the red
particles of the blood thro' the vessels. The enlargement
of the prostate is ascertained, by passing the finger
up the rectum; but this does not enable us to judge
of the size of the gland; for it is the fluid, & not the
solid part, that is the cause of the enlargement.

The prostate gland has been found enlarged in
young people: a boy was brought into a Hospital
thence, with what were supposed to be symptoms of it.
He was soundly by the surgeon, & some time after
a day was appointed for the operation; but a retention of
urine came on, the catheter could not be passed & the boy
died; on Examination the prostate was found enlarged and
indurated; but there was no calculus in the bladder.

The treatment is in general, merely temporary; the
Bals. Copaiba in doses of about ʒ^{ss} ter in die, is an excellent re-
medy; the uva ursi has been of service, tho' rarely; soda
water Kali Carbonat & the sitz bath have also answered a
good purpose; the muriat of mercury gives the most perman-
ent relief so in many cases has considerably reduced the

size of the tumor; it then applied to the tumor
 have been said to give relief but no longer used in
 service.

The common catheter is not of sufficient length for
 this purpose; it should be two inches longer than usual;
 it should also be large, especially at its extremity which
 should be round. After having used the catheter for a few
 days, the urine usually passes. If the urine does not pass
 when a bougie has been introduced, we must have recourse
 to a smaller metallic bougie; there is no need of tying this, to
 keep it in the bladder; for a slight curve will soon coil,
 a little plug should be used to prevent the dripping of the ur-
 ine. This instrument must be taken out every few
 days; otherwise it will be corroded, & break; requiring
 an incision into the urethra, to get it out.

The use of mercury in the treatment of this disease
 has been of considerable use in this disease when
 the patient is young.

Effects of gonorrhea.

in the bladder. This sometimes is the effect of inflammation in the ~~inflammation~~ ^{inflammation} of the urethra; but is more frequently the effect of structure in the urethra. It is often considered for a calculus in the bladder; & the symptoms are so similar that without urine the sound it is frequently happens that they cannot be distinguished. It is known by a frequent inclination to make water, every 2 or 3 hour by day & 6 or 7 times or more, during the night; & if he endeavours to restrain this inclination, he is seized with very great pain in the bladder; the urine is mixed with mucus & often tinged with blood; in a young man whom Mr. Cooper is sometimes in the habit of attending from frequent inflammation the bladder has contracted adhesions to the abdomen, so that he cannot stand upright; in this disease there is no effusion of air or a temptation to introduce an instrument. It may be distinguished from stone: when the bladder is empty the patient is easy; in this state he can jump, & step down to shake the leg without occasioning pain.

138 *Being the bladder be full, much pain is experienced.*
The urine frequently stops but on exertion we shall
find that this proceeds from his own efforts, that being
able to bear the pain; & not as if any thing stopped it, as
in the case of stone. There is also tenesmus; & a tearing
sore of the ~~bladder~~ ^{rectum} - in short it is a most dreadful case;
many have died from it. On examination the mucous
membrane of the bladder is inflamed & fungous resembling
the luvic conjunctiva of the eye in the Egyptian ophthalmia -
it is red & adenomatous; the bladder will at first contain about
2 pint. but towards the end of the disease it is so much contracted,
that it is not to hold more than 2 ℥. If it proceed from stric-
ture in the urethra, the caustic bougie must be employ'd to
remove the stricture, & the application of caustic will be found
to relieve, rather than increase the irritation. But if it
be proceed from stricture, or if it remain after the stricture
is removed, an injection of opium & mucilage should be thrown into the
bladder, if the ℞. Opii be not ʒi or ʒʒ is ʒi of mucilage insufficient;
or if of the extract of gum to ʒi of mucilage may be employ'd; varying
the proportions according to circumstances; or better lastly
a gum bougie should be introduced into the bladder, & the
injection thrown in thro' it by means of a syringe.

It is difficult to treat this by means of a syringe &c;
but it is sometimes necessary to use it, & then to be repeated
daily, & to be along the urethra, taking care not to let it
gitate; those who have been accustomed to this method will
pride. Opium & Linum catharticum have been introduced into
the rectum in the form of a pill with the best effect; it has often
been attended with greater success than the injection; the patient
finds the employment of glysters extremely troublesome. The
Aqua Kali, & the Oil of Turpentine are often of service; but in all these
diseases be taken early, all remedies are much better.
This state of the bladder is often brought on by not retaining
the urine too long; & the worst case Mr Cooper ever saw that of
a young man who arose from this circumstance; it soon
goes on to ulceration & a communication between the bladder
& rectum; when the bladder is ulcerated a portion of lymph
is thrown off by the urethra, & then
mixed with mucus is discharged, especially, just before the
formation of this clough of lymph; then a communication be-
tween the bladder & rectum exists, the urine has a highly
foul smell; there is continual discharge & the patient wastes away;
it is not a frequent disease. The elastic gum bougie is to be
used for the water to subvert it, to prevent the return of the

1st bladder, & by the same I felt & heard the urine
from touching the internal part; & others must be often
used to keep the urine clear, & fresh. Spinalgia is very
sometimes the bladder which is particularly common
case; & there is at present 2d case in 'Thomas'
hospital, in which the urine passes out thro' the abdomen;
this case under the care of Mr. Cooper

He would employ the caustic
to destroy the structure; & then he would keep in the
bladder a hollow metallic or gum bougie to allow
urine to dribble off, so as to keep the bladder empty,
irritating, or cauterizing the sinews to heal the ulcer.

Relax of the bladder is sometimes the result
of an aneurysm; & often occurs in old people; the bladder
is distended without pain or irritation; if a catheter
passed in a recumbent position, no urine is discharged; but
if he stands up, it passes immediately; if the constitution
be at all irritated, it is only after a considerable time.
The treatment consists in applying a blister to the
loins.

Second kidney after gonorrhoea & the water

As the hemorrhoids have been expelled, it is not so common as if the
entire mass of the hemorrhoids remained in situ, & it is not so
easy to see the same when the hemorrhoids are expelled.

As the presence of hemorrhoids requires particular
attention.

Hemorrhage from the rectum frequently occurs in the
inflammatory stage of gonorrhea, alarming the patient
considerably, tho' there is nothing serious in it, & is easily stopped.
In Hemorrhage from the rectum from any cause, press on the
membranous part of the urethra, & see if the blood stops; if so, bring the finger forward still pressing & watch
it grows; when it is thus made to cease continue the pressure for
about 10 minutes; which is usually long enough if there be
no rupture of the urethra; this seems trifling, but it is not
usually practised; on the contrary some introduce a bougie
to press on the mouth of the vessel; but this does harm. If the finger
is not sufficient to stop it, place a roller in the
vagina & confine it by a T bandage, which will effectually stop the
hemorrhage; as the patient is generally irritable if it is not
stopped with Magnesia vitriolata in Infusion of rose.

Chordee is a very troublesome symptom; the penis is bent
either on one side, or downward, on the attempt at erection;
& the constant stretching of the cord gives great pain;

157 It is a very common complaint, especially in the
female sex, and is often attended with a very
great degree of pain, and sometimes with a
very great degree of inflammation. The
whole of the parts are greatly extended; the pain is
sometimes very great. It is found to palliate
the pain, but the cure is, to use of heat;
sometimes, and sometimes not; they must be made heavy, but
their weight may prevent cure; but their heat is unfavorable,
and a Lint: is very good: but a Lint: is
the best remedy, to which camphor is sometimes
added; a purge should be given the next morning, to obtain the
active part of opium; if laevities remain after the use of
friction with Hydrate of Camph. Lint: is of service.

After gonorrhoea has disappeared, inflammation of the
urethra, increases, tumour, about the size of peas on the urethra,
part of the corpus spongiosum; often suppurating & sometimes
bursting into the urethra, the urine passing thro' the scrotum. I have
known happen of the Patient dying under this complaint,
but this is extremely rare. An opening should be made as soon as
fluctuation is perceived; for if suffered to break an hole remains,
which is difficult to heal; the edges of the sinus should be
treated with lunar caustic, but not the bottom, lest it turn

into the mouth.

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Sympathetic bubo This is a very common disease
which is the subject of gonorrhoea for the first time; several
glands are usually enlarged, & the state of
lymphs in the groin; & in this circumstance it differs
from erysipelas; for which in sympathetic persons & the
under disease seldom more than one gland is affected.
There is no danger in a sympathetic bubo as it does
not affect the constitution & generally disappears in a
few days. The cooling treatment alone is sufficient;
e.g. Lemon Acet. or bicarb. with sugar & the line
may employ'd; they rarely suppurate and if suppurating
treated such as rubbing mercury.

Inevitable abscess sometimes forms a ^{small} abscess
penis; the treatment is the same as in simple abscess & there
is there any danger of remote ill consequences.

Impotency

It arises sometimes from the venereal disease but
most frequently from other causes, as the loss of the
spermatic fluid, especially in going to bed & more
particularly if early; the body becomes much weakened;

144 The mind is generally affected. Treatments.
Albani si - mproba ij - ferri sulphatis ℥
ss q^hxxx - Bals. Capivi q^s. at. Spilulas xxv℥xx
... at y ... in die; this gives the ...
... enables the vesiculae seminales & vasa deferentia
to return the semen. Impotence may also arise from
irritation of the vesiculae seminales or perhaps of the
... of the ... caused by the emission of the semen as
soon as the penis touches the female; with the immediate
loss of the power of connection. This is a very common complaint;
indeed sometimes it occurs without erection, even from
simply looking at a woman with desire. Again it may
arise from frequent night emissions; the most delicate
person may have night emissions every week or 10 days
if he has no connection with a female; but those which
are frequent occur 2 or 3 times in a night weaken
the body considerably. Cicuta & Scellan to be given
internally. A globe formed from the neck of an bladder
... globe, placed on the penis; the pressure which
this makes on an attempt at erection awakens them when
they are able to prevent it. The ... sometimes with

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- therefore, this is a very important
service. A man may be impotent only from
anxiety; when applied to for this, we must not
make light of it, for the patient is much alarmed;
a few pills should be given them to take at bed time
reassuring them that when they are all taken, the complaint
will be cured, but they seldom have occasion to take the
whole. This state arises entirely from terror; & the impression
on the mind has been strong as to lead to the commission
of suicide. Mr. Hunter used to advise the Patient to en-
deavour not to have connection, & this contrary state of
mind diverts him from fear, & enables him to resist it.

The loss of one testis does not destroy the virile power;
& there have been instances of men being the fathers of sev-
eral children, in this state; but an abscess in both testis-
es, & testes, weakens it; there is little disposition to urinate,
& the discharge is small. Mr. Cooper has removed both testis-
es in one case; & the second the other having been before removed
in another case; in one of these, the Patient had a nocturnal
emission 3 days after, & another while he remained in the
Hospital; he went home & cohabited with his wife having emis-
sions; after a time he had the sensation without emission;

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The next thing to be considered is the
mode of cure. The size of the testis is not
increased in this accidental testis. The whole testis is
of the testis once in question, will have it
to be again for that disease; this shows how ex-
posed we should be in using injections.

External gonorrhoea. Gonorrhoea sometimes
affects the exterior of the gland, the glandular
neighbouring glands; suppuration of these glands, forma-
tion of sebaceous matter is common. The discharge in
of gonorrhoea is excessive & is mixed with blood; the gland
swells, & often there is phimosis. Aqua Calis^{ca} calomel & the
opii, or the acetate of lead & opium may be used as an injection;
& also lint dipped in either of them, applied round the penis. This
disease usually goes off in 7 or 10 Days.

Some people, whenever they have gonorrhoea have also
matism & ophthalmia at the same time, Mr Cooper has seen
several examples of this; if injections are used the ophthalmia
& inflammation are increased; but by using the warm bath, &
drawing the inflammation so as to become a general disease,
these symptoms also are removed; after using the Bath the
Bath of opium should be employed, sometimes mixed with

in the

in the female, common with inflammation of the vagina, which next attacks the cervix uteri & the uterus. The latter becomes the principal seat of the disease, extending, as in Man to the base of the bladder, & sometimes to the bladder, indeed it extends to the bladder more frequently in women than in men. Women suffer more at first from a forcing pain of the bladder & vagina, especially after much water, accompanied with a spasm of the bladder, then with a sympathetic tubo.

Treatment. Purgatives & fomentations must be resorted to in the violent inflammation, but they must be as long as possible, & when much debility & pain should be resorted to. When the inflammation is reduced, the following may be employed as a wash of Alumina.

Decoct. Cin. Cond. gel.

Decoct. Cort. Querc. Off. r. - This may be

continued increased to ʒi to ʒiij of the juice & a pint of water may be used to use it frequently & a poultice wetted with the lotion may be applied to the labia & perineum.

... ..

Gonorrhea is subject to a discharge
seat symptoms resemble gonorrhea
is a venereal disease; & the discharge appears to me
places about the nymphs & surrounding parts. We should be aware
of this complaint as livers have been lost in
supposing that men had been treating them ill. The
of the Aqua Caloris calomel: are sufficient for

Gleet is a common consequence of gonorrhea in
& are difficult to treat; gleet is commonly
a discharge from the urethra to be infectious;
it carrying to be infectious is uncertain, for M^r. Cooper has
known it to be communicate the disease 12 months after
become gleet, to avoid therefore, any danger of this
habit of considering it infectious as long as the discharge con-
tinues. In Women it is still more difficult to tell; a woman
will give it to a fresh man, when one who has had it often has
union with them with impunity. The seat of gleet is
gonorrhea; the discharge resembles the white of egg, but
real excitement, riding &c will make it yellow; the
structure to any extent, without gleet. Two parts of Bath
to one of the other given; &

Hydrarg.

... ..

promoting suppuration & 3i of the solid stuff
 not to be changed. R. S. & 3i of the same material
 / 2i cupi vitriol.

3i of the solid stuff 3i of the same material
 is the best general treatment. But if this is not success-
 ful, all injections are to be left off, & a bougie smeared with
 Bala. Capivi, or Bals. Capivi & oil equal parts should be
 introduced; or the Ung. Hydrarg. Mercur. or Ung. Sassa-
 parilla diluted, may be melted & injected, or a bougie may be
 smeared with either of them, & introduced. If the bougie has
 not effected a cure, both bougie & injection should be used;
 & very obstinate cases have been cured by this treatment.

Dr Cooper has seen cases of gleet, which nothing but mer-
 cury would cure; but the discharge was sanious, & not like
 a white of eggs.

A woman may convey infection thro' a second, without
 that second being affected; & women often communicate the
 disease without knowing that they have it.

Syphilis

Chancres. An itching sensation first leads to a
 - best to suspect the existence of a chancre; on touching it
 in a small pimple with a white head containing
 matter mixed with blood; the head being gone a
 depression is left with a ragged & thickened edge &
 inflammation extending around; this inflamma-
 tion is not healthy but dark colored; when it is taken
 up between the finger & thumb, it feels thickened under
 the skin, as is the case in all specific lesions; for the appearance
 alone is not always sufficient to distinguish chancre from a
 sore without this thickening, it should be treated as a simple
 excoriation. The seat of chancre is various, oftenest on the
 glans - also on the prepuce, corona glandis & often on the
 frenum, which is generally destroyed by it. In a
 healthy constitution, mercury may stop it before the frenum
 is destroyed; sometimes, tho' rarely, it seizes the urethra
 a little way in the urethra; & this is very apt to be mistaken
 for gonorrhoea; but is easily distinguished, by the discharge which is
 a smoothish ichor & not in so great a quantity as in gonorrhoea &
 the lips of the urethra are thickened. Sometimes a chancre occurs
 on the skin on the body of the penis, & the urethra is not involved

remains being white & tender. The penis, if the scrotum
will should be given more & more of the strength with a bit
of gum or as much as will prevent it from going off to
the blood. The best application is: \mathcal{R} Calomel \mathcal{R}

or in unimittable habit, calomel may be sprinkled on the
sore: or it may be made into a paste with gum & applied
or Hydrar. Muri: in water, or with Regia Calis: long: Hydrar.
cristallis has been used; but all unctuous substances are in-
sufficient: if the red nitrate of mercury be applied, it is best made
into an ointment with conserve of roses; washes are however
in general to be preferred.

There are some cases which alarm both the Patient &
Surgeon; as where the penis is inflamed phimosis a general
deep livid color threatening mortification; a constant & bloody
discharge from under the prepuce, & tenderness of a last fit; this
points out a chancre in a sloughy state. Whenever there is much
common inflammation with syphilis, the use of mercury is only
improper; in this case therefore, wine must be given; but give a
little larger, & apply: \mathcal{R} Li Liang: Rect: Comp: 3j

\mathcal{R} Calis 3j ad 3j \mathcal{R} or Regia
Calis 12 in London 12, 10 or 12; but larger must not be

154 *... the following should be injected under the skin, &c.*

... the following should be injected under the skin, &c.

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The prepuce when it produces so much trouble, may
which means it can be drawn back. In all cases of phimo-
sis except that from natural causes, or from the healing
of a chancre, the operation is to be performed.

In some cases there is an adhesion of the prepuce to the
glans, in phimosis, proceeding sometimes from disease but
more frequently from nature; here no operation should be
performed; indeed in no case where the director cannot pass
round the glans except at the prepuce.

~~Paraphimosis~~ may come on after drawing back the
skin in phimosis; but however produced, it should be im-
mediately attended to; care must be taken not to allow
the glans to slough - to which it has a greater tendency the
longer it lasts; therefore, except mortification is already in-
volved, it should be reduced as soon as possible. In paraphi-
mosis there is a general effusion of serum into the prepuce;
the skin forming a ligament behind the corona glandis.
Surgeons have been too much in the practice of boring
their thumb in applying pressure & leeches, a number of
incisions should be made into the prepuce where it is inflated
with water; the serum being thus discharged the glans will be
gradually reduced, & need not be removed.

...; the ... in ... which ... all the ...
 ... the ... of ... the ...
 ...; & the ... has in some cases been obliged to apply
 ... minutes, he has never failed to remove it by this plan
 ... it has existed for a considerable time, a 2013 ...
 ... adhesion.

Sometimes after Pharyngitis has existed long the part
 ... & a circumcission is required. but the ...
 ... to be performed before ... have ...
 ... avoided.

At other times happens that after using mercury, ...
 ... painful & inflamed; mercury is immediately
 ... the following ... to the chancre:

Acidi Nitrici ʒss ad ʒi

R: fowls 3ss ... the ... are to be ...
 ... & bark & opium given; when the chancre ...
 treatment become ... the following may be used:

R: Sp. Aether. Nitros: ʒss ad ʒi

Stur. Hydrar: ʒi/2 ... to live in ...
 ... of the ... is ...
 ... to ... but ... may begin.

If the treatment be pursued in the best manner, the
wound is healed in six or eight days, the case is then
sent to the Hospital.

Sometimes after mercury has been used for a considerable
time, the wound gets indurated & will not heal, & in many instances
is to be omitted, & bark is to be given & the mercury must
be applied every other day.

Instances occur where chancres slough from high inflammation
of the part, & this inflammation running back even to the
puer, the parts gradually sloughing until the basis of the chancre
is exposed, & sloughs the glans also sloughing, & a great part of the
penis is destroyed the disease passing into the urethra & forming a
stricture there. Mercury is never to be given when there is the
least disposition to slough; the local remedies are: 1. A
Callos C^m calomel applied hot to get it to the living parts; 2. The
nitric acid lotion warm; carrot poultice made of scruple of carrot,
& linseed meal 3i; or a table Spoonful of yeast, water 4i to 8i, in
finer meal; warm turpentine applications; or which is the most
efficient, to 2ss. Callos C^m calomel.

℞ Conserv: Rose 3i

Mel: Rose

℞ R^hi

℞: Lith: Carb: 3i 1/2 it is the best.

The best constitutional remedy is: ȳdan moria ʒi 9ʒv

100 Nov. 12 to 6. When the time is a day or two
later remedy than back: a decoction of the same
generally 120-130 but often 160. It helps it at 100. but
not to irritate & sinken. Medical Men have differ in opinion
with respect to the use of sarsaparilla; but Mr Cooper has seen
it to be an excellent remedy in cases where the constitution is
longer irritable from the injurious use of mercury; so
persuaded is Mr Cooper of the bad effects of too much mercury,
that he thinks it has done more harm than good has; and
or, it is to be given according to the pulse. It often happens
that a free hemorrhage takes place from the penis; but if
the birth should be applied; in some cases an healthy change
takes place immediately after; if this does not stop the hemorrhage
the penis should be taken up with a ligature. There is no irrita-
tion, effect arising from this, it might be expected in the contrary;
it is often followed by an healthy change; Mr Cooper has seen
great advantage follow hemorrhage that he has been sometimes
inclined to use leeches.

There are often such stings, that the authoria is large, &
the wound is sore; if more than half the authoria be
destroyed, there is no hope of restoring it, but if less than half be

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The disease is a white, firm, fleshy, and sometimes
fleshy, it may be red. There is a great deal of
heat, it often is the cause of stricture, which cannot be cured
either by the acetous or common or bougie; pains of the urethra
bougies are to be used, & left to lie in the urethra first or last;
then 2, 3, 4, or even a day, if numerous substances be introduced
then so much the better; then use to be made with a
thin & suppurative is produced. otherwise the stricture is apt to
return; it generally takes a month before the cure is complete.

Sometimes the sides of the urethra adhere, causing a retention
of urine; the urethra behind the stricture swelling upwards; the
patient is to be directed to open it to make water; the urethra then
becoming more distended a lancet is to be passed thro the place
down to the part at which the urine is stopped by which it is
discharged; an hollow bougie 2 or more inches long is to be used. the
urethra inflames & suppurates & the Patient is cured.

Chancres in Women is usually situated at the inner side of
the labia & hymenae; it appears like a wart with an ulcer in the
centre; it is sometimes, tho rarely, situated at the angle of the va-
gina & occasionally making an opening from it into the rectum & is
called the fever sometimes high. It is a fatal disease, & should be
applied; & the Patient should rub in mercury, or take the pills of
mercury generally, so well. Women are very subject to a long time.

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being it is a 4 grain stimulating ointment, when there
are a great number of warts, it should not be applied at
once, lest excessive inflammation of the skin be excited.
In females there are frequently so many warts, that it can be
applied to the whole without danger; if the face is full of them
however, but it removes all to which it is applied. In either case
the following Ointment may be applied every day:

R. Oxyd. Argent. Zi

Unguent. Zi M. if this excites too great inflam-
mation, it should be omitted, & a poultice applied. Iodine powder
is inferior to this, but the following may be used:

R. Oxyd. Sabina

Cupri Acetat.

Alyron. Nitrat. Rub. partes aequales In water to
sprinkled over the warts once a day, keeping it from reaching
the healthy parts.

A wart sometimes occurs on the corona glans;
increasing thro' the prepuce, a part of which falls upon the
penis; in some cases phimosis or circumcission, are necessary
in some way; but first the black or yellow wash should be used to
bring the inflammation subsiding, & when the warts are out of
the prepuce may be removed. In the male warts rarely grow
large as a walnut, but they are occasionally much larger in
the female, & Mr Cooper has been obliged to remove some by the
knife; the hemorrhage was not long.

Bubo

It is frequently taken place on that side on which the chancre is
situated, but sometimes it is found on the opposite side. It is
usually an enlargement of one gland; - if more or
less, they are commonly not venereal; or if several are
larger from syphilis, only one of them is strictly venereal; the
others may be said to be an enlargement of many in each gland;
only one in each gland is then venereal. The symptoms resemble
those of common inflammation in a gland, but the
pain is increased in the evening.

Treatment. A dram, or 2 drams of the strong mercurial Ointment
is to be rubb'd in every night; this is all that is required
if it be taken early. But if it be gone on to some extent, and pain is
present, a purge should be given; & indeed in all cases it is best
to be previous to rubbing in; for the mercury is then the sooner ab-
sorbed; if after rubbing in, the pain become more severe, & the
skin be red, mercury should be omitted, & leeches, & Aqua Lith: & et:
should be applied; then having waited a few days to overcome the in-
flammation, mercury is again to be employ'd; but if the inflam-
mation be greater than the venereal disease produces, & remains

be well it is in a state of suppuration. If the inflammation
have begun, no mercury is to be used. There is an exception to
this to be hereafter mention'd. Mercury makes the inflammation
live inflammation can be healthy; & when the abscess begins
it becomes sloughy; a phagedenic ulcer is the consequence
sequence of the use of mercury at this time; such a person
diet are proper with fomentations & poultices; for it must
be considered as common inflammation & not as venereal.
When a bubo has discharged its matter, & the skin is unbroken
& without pain, mercury may again be used. it is best to
leave it a week or 10 days before we use mercury. A boil-
ing bubo, or phagedenic ulcer, is a very dangerous com-
plaint, & must carefully be guarded against. When a person
has suppurated the skin has no disposition to burst, they
be opened with a lancet; then dipping a probe in nitric acid
the edges of the incision should be touch'd with it; this makes
a deeper opening for the discharge of the matter. But some people
are so tender that they are afraid to have it opened with a
lancet; a probe dip'd in nitric acid should then be applied
to the skin; this forms a white eschar, & in about 24 hours the
abscess will be open'd. Some times a suppurating bubo
becomes indolent, the pain having ceased & the swelling

of the ulcer, & if it is not yet healed, the ulcer should be treated with a mixture of equal parts of the following: *Mercurius*, *Calomel*, *Opium*, *Resin*, *Castor Oil*, *Alcohol*, *Water*. When a hole is large and indolent, having no disposition either to separate or to be absorbed, the mouth being slightly affected, a blister should be applied to the part. When an indolent ulcer has no disposition to cicatrize, tannic caustic should be applied to the edges of the surface, once a day, & a lotion of the *Tannic Acid* & *Opium* used; both the nitric & sulphuric acid lotions have also been of service; when all these ways have failed it has been occasionally successful to expose the ulcer to the air, by which means it becomes dry, the healing process goes on under the scab.

Sometimes the ulcer is so deep that the structure of the part is being destroyed; it may then be incised with a solution of *Hydrogen Peroxide* & *Opium* as follows:

Hydrogen Peroxide 3i

Opium 3i or a blister may also be used.

When the ulcer is deep, some cases cannot be cured without the use of the *Hydrogen Peroxide*; but even after there should be time before the ulcer is cured, it is to be done as much as possible with the *Hydrogen Peroxide*.

The *Hydrogen Peroxide* is a mixture of *Hydrogen* & *Oxygen* gas.

... may be ... the ...
 ... it ... life. The ...
 ... is very ... Patient is the ...
 ... of ... is that ...
 ... and ... into the ...
 ... the disease ...
 ... is ...
 ... is ... the ...
 ... the ...
 ... is usually ...
 ... sometimes an exfoliation takes place; it is ...
 ... difficulty of breathing, & a discharge of pus mixed with
 ... It is very apt to be mistaken for phthisis pulmonalis, & the most
 ... treatment is necessary.

Treatment of erysipelas in the throat.

Mercurial frictions are to be employed, & local applications to assist;
 if the ulcer be sloughy, powdered borax should be applied, drying
 a crust of salt in it, & banking the ulcer the sloughs will separate.
 But mercury may be used but it is as good as borax, the nitre
 and lotion also, & a gargle of sulphate, may be employed. If it
 has affected the roof of the mouth, a weak solution of nitre, or me-
 ... off the fetor of the breath, ...
 ... a healthy state of the ...

When the ulcer has been treated, the patient is not allowed to eat
 the same as before. A small plate of silver has been made, and
 since a piece of silver is fastened to the roof of the mouth by
 a string which is fastened to a piece of sponge in the nose. This
 is inconvenient as the sponge becomes filled with mucus and must
 so that it must be changed every day. The best sort is that in
 a spring is fixed to the teeth to keep a plate of silver against the
 palate. But if the hole be far back in the velum palati, no
 assistance can be given. This Mr. Cooper is enabled to say after many
 trials. The sore in the fauces heals with little affection of digestion
 or voice. When the ulcer is seated in the larynx, we must give salli-
 -cate internally & fumigate the throat, as we cannot reach it else.
 Lecture 32.

Venereal eruptions

Differs from other eruptions on the skin in being attended
 with a crust under which is a quantity of blood & some-
 times purulent matter; it resembles chancre in having a mounting
 hardness, & in the depth of the sore. It appears first on the body
 like a small crust; it then attacks the face - throat & the extremities
 which are most remote from the circulation: it often causes the
 falling of the hair when the arms are affected; - frequently it is
 attended with a swelling of the testicles & the glands of the neck.

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The skin for these is white. They have a resemblance
to the skin of a fish. These eruptions vary much in size;
sometimes sometimes in spots as large as half of the eye, but
sometimes small; if the constitution be vitiated these
may be as large as sixpence or even halfpence; & on account of
this the skin is discolored, & they have an irregular
edge like a number of different ulcers, with insular spots
within among them; so that in healing the cicatrization of
them is begun from many points at once. It is attended with
a redness of the skin, tho' there is an itching which becomes uneasy when
the body is hot; but when there are ulcers, the pain is very great.
Sometimes, but very rarely, they destroy life; but this is the mildest
of the secondary forms of Syphilis.

Contra-indication. Besides rubbing in mercury, if it goes on well
- make use of it be given; it has a quicker effect on this than on any
other form of Syphilis, acting as well by its effect on the sympathetic vessels
of the stomach & skin, as by its specific power.

R. Mercurii com. Subl. ʒi

Oil of sweet Almonds 3ʒ. M. capst 3ʒs at 3i in a c.

If the cure are inevitable, the nitric acid is good; but this does not
mean every that it will cure Syphilis, because, however

not used as a cathartic; but it is inconsiderable, & it is not
weak or must omit mercury for a time, it is a good means of
raising the strength & restoring the appetite besides the little benefit
it may have over the disease. With respect to local treatment
the sores should remain incrusted for if treated with any me-
-tuous substance they will be apt to ulcerate; but if they are
irritable, & apt to ulcerate the following may be used:

℞ Opii ℥i

℞ Hydrarg. nit. ℥i Hydrarg. nit. ℥i
Gallic. ℥i Murr. Hydrarg. or a solution of Hydrarg. & Opio may also be used.

The absurd name of Inagornic ulcer is given to a sore,
which is generally produced by the improper use of mercury during
inflammation, in a suppurating tube, or in irritable
excitations. It is an ulcer with debility, & is very painful & is
in that debility, not being from birth, the cure is by
-leaving the granulations to grow. It is generally
difficult of cure; but the following method will be of service in
many cases. The following Lotion should be applied every day.

℞ Argent. Nitrat. ℥i

℞: water ℥i in having washed the sore with it,
apply the ℞: either by a brush or lint or the mercury is precipitated

It is the solution of vitelline over & of the Egg be ev-
hallow the 12 parts of rect. may be employ'd in this
use. I succeed the following may be applied.

℞ liq. nitric 4 ℥ss

℞ ℥ss. fontis 3℥ss - or the Sulphuric acid
in the same proportion; this is very good if the vision be im-
paired; & if very much so opium may also be used. The constitutional
treatment should be by bark, cassia, ammonia, wine, &
other stimulants, & a good diet.

Venerent ophthalmia

may be considered as part of the eruptive disease, as it ge-
nerally occurs at the same time. It has a peculiar character,
which makes it easily distinguishable ^{from} other kinds of
ophthalmia; there is little or no pain to light; there is a nocturnal
exacerbation, when the pain is greater & light becomes
unbearable; there is a circle of inflammation near the
transparent cornea, a part of the opaque cornea appearing
between them of its usual white color; & this is often con-
sistent with inflammation of the iris; the pupil is not circular,
& sometimes adheres to the capsule of the crystalline lens; when
the cornea is not much involved. This is a very serious disease,

often curing in blinck & so on, & it. Mercury has a quick effect; & sublimate with the greatest efficacy, & it should be given in Decoct. Sarsaparilla; & mercury still in to complete the cure; for sublimate alone is long before it effects a radical cure.

Syphilis in the bones. The bones of the nose are often affected; but it is rather connected with venereal eruptions, than originally in the bones; for it appears to begin in the mucous membrane of the nose. There is pain & tenderness, across the bridge of the nose, which is worse at night; the skin is red & thickened; & scabs & bloody matter are discharged by blowing the nose. Portions of bone then exfoliate, causing great deformity; but if, before the disease has gone so far as to discharge the bone, the disease is treated externally, the bones are drawn down the nostrils with great deformity may in a great measure be prevented. The treatment is the same as in other syphilitic diseases, & also a solution of the nitric, muriatic, or sulphuric acids should be syringed into the nose; the bones are thus softened, the exfoliation hastened, the pain removed, & the granulations encouraged.

A nodule is a swelling in a line, usually in the middle of the cylindrical, at the places where they are covered with thin, & smooth,

17/1 The most common form of the disease is the
osteomyelitis, it is rare in the femur which are mostly
right joints; the pain is obtuse, is worse at night & this is un-
common with osteomyelitis. The difference between a venereal node
or swelling of the bone from other causes. The disease com-
mences with an obdurate induration in the periosteum; a
sloughy fluid is then deposited between the periosteum & bone which
is followed by the formation of pus, the skin becoming red and
evidences of suppuration existing. This is to be particularly
attended to, for there will be fluctuation in a node, without
the formation of pus; but as soon as pus is formed, the skin is affe-
cted; this distinction is of great importance in the treatment. It
is not a disease of the bone; but it originates in the peri-
osteum, the enlargement of the bone being only an effect.
Treatment. Mercury must be rubbed into the constitution; if
this be pain the soap plaster should be applied; & the Empi-
cal. Ointment. If the irritation be not great; if it be going on to
suppuration, blisters & leeches should be employed; the former
should be kept up long. If there be fluctuation, without in-
dication of the skin, we know that it contains pus, and
if at this time a lasting disease of the bone will be

The disease may be communicated by inoculation. It is not the intention of the skin to be so diseased but the infection has, & a small opening should be made into it & mercury should be used. The bones of the cranium are often very much affected; but the disease is the same, when it occurs in other bones, except that in bad constitution, there is danger of its passing into the brain & destroying it.

Some well settled extend along the thighs, legs, & arms, & are worse at night; those pains which occur in the shoulder, elbow or knee, are not venereal, but rheumatic; the former existing in the bones, the latter in the ligaments. The bones become covered with osseous deposits. A longer course of mercury is here required, than in any other form of syphilis.

Enlargement of the testis sometimes, but rarely is the effect of syphilis; it is seen with the venereal eruptions, & goes off at the same time with them.

The venereal disease may be communicated by inoculation, by accident, as by the prick of a pin; & when thus conveyed, its effects are worse than when it is contracted by the common, & natural way; indeed, it is sometimes very dan-

growing existing inflammation of the abscess & other local symptoms

Lecture 33rd - Syphilis never affects the vital organs, as the brain, or the Thoracic & abdominal viscera. It can only affect the first glands in its way into the system; and indeed, sometimes it gets into the circulation without producing a bubo.

The symptoms are usually divided into the primary & secondary; under the primary are included chancres & bubo; but bubo is not truly primary & might with greater propriety be called intermediate; the secondary symptoms are the affections of the throat skin & bones. Some persons cannot be affected with syphilis & others are insusceptible of the poison of Gonorrhoea; & the disposition to each is lessened by repetition. Excessive venery will turn a gleet into a yellowish discharge, which the Patient thinks is gonorrhoea tho' it is in reality not infectious.

Mr Hunter did not believe that syphilis is a constitutional disease; but in the secondary symptoms, a few

evidently comes on in the evening & continues until about
 4 o'clock in the morning; in some cases also the eruptions
 come out in the evening, & disappear the following morning;
 recurring again at night; sometimes the fever precedes the
 eruptions. Mr Hunter first taught that ^{secondary} gonorrhoea
~~is~~ is incapable of infecting by inocula-
 tion; & this has been confirmed by experience: the story is
 therefore, of getting it by kissing, are false; in these cases
 there must have been something closer than kissing; &
 the same circumstance has been proved in the case of lues;
 so that chancre, & gonorrhoea alone, are capable of infecting.
 Great care should be taken not to use a catheter after a gonor-
 rheal patient; as the disease has been often communicated
 in this manner. If the matter of gonorrhoea be inoculated
 into the penis, it will not produce chancre - this has been re-
 peatedly proved by experience. A child in utero is capable of
 contracting the venereal disease, tho' Mr Hunter thought
 otherwise; but in the child the venereal eruptions are on the
 nates, soles of the feet, & palms of the hands; & such in another

For the purpose is required for the cure more than that the mouth should be impregnated with mercury taken by the mother. Mr. Cooper speaks from his own experience when he says: That a Woman who has a Child in utero, cannot be cured of the venereal disease; but that tho' it subsides under the use of mercury it reappears after delivery. After a long mercurial cure, sores will frequently appear on the penis bearing some resemblance to cancrs, the edges being ragged & the surface sloughy but the inflammation is more extensive than in chancre, & though it may be kept with water, & go off in a week or 10 days.

It cannot surely be considered as venereal, unless it be ~~communicated~~ ^{produced} by chancre; for tho' chancre heals of itself frequently, & the following yet latent still remains about the part where the chancre was. Several sorts of ulcers are met with in the throat, as the scrophulous & mercurial, as well as the venereal; the mercurial resembles the phagedenic ulcer, but

venereal is less confined to a red & inflammation a
round it with but slight enlargement of the part. In the
scrophulous there is usually an enlargement of the tonsils,
& pieces of lymph are cough'd up from the glands. A person
who has not had a venereal sore throat, contract a disease
again, mercury will bring on a sore throat, resembling the
venereal ulcer; in this case mercury is improper.

The venereal eruption has a circle of inflammation
& hardness about it; but the long continued use of mercury
will bring out an eruption which has a crust like the venereal,
but has no red circle of inflammation. A swelling of the bone
will often occur without syphilis; & often arises from the use
of mercury; but it is not attended with nocturnal pain, or
affection of the throat, or skin; & is easily cur'd by blisters
& sarsaparilla. Delicate women also frequently have nodes
without syphilis; attending to the general health & giving
the Mist: Myrrh: & ferro, with blisters, will cure them.

There is an eruption on the nose call'd *rosolia* me ten
-gore which is often mistaken for syphilis; but what a reality
has nothing is common with it; it should be cur'd

every day in equal parts

Aque. Miltat. ʒi

Aque. Carb. ʒi ss & the black wash

should be applied after it; some medicines must be given internally; but a case which Mr Cooper failed of curing by this plan, afterwards recovered under the use of arsenic internally & externally.

In some persons Syphilis cannot be cured by the common employment of mercury; but the ulcer inflames & the constitution ^{becomes} so much deranged that it cannot be pursued without endangering life; this is most frequent in scrophulous persons; it is under these circumstances that the Plummer Pills has been of so great service; it should be given with Decoct. Sarsaparilla; Van Swieten gave Hydrarg. Mur. in the Decoct. Sarsap.

Mercury cures syphilis by exciting fever, & producing a new action, destroying the syphilitic one; fever of the common kind will stop syphilis or gonorrhoea; in using mercury it should be remembered that the cure depends not on the violence of its action, but on its continuance; for otherwise the action of mercury should be stopped.

least, for three weeks, for the secondary
 form 5 weeks & this is more especially necessary in the case
 of the bones; in venereal rheumatism it should be kept up
 for 6 weeks. Some are so easily affected by mercury, espe-
 -ally women, that even $\frac{1}{4}$ gr has been known to salivate; some-
 times such salivation is produced as to destroy life. In these
 no quantity of mercury will salivate. No the disease is
 cured in them as well as in others. When the patient is
 not so easily affected, the pediluvium should be resorted to
 for the absorption when mercury is rubbed in. The best
 form of using mercury, is the Ungt. Hydrarg. if the patient
 will consent to it; the blue pill is best in the next degree;
 calomel, & sublimate affect the mouth quicker than these;
 but the latter is not so quick in effecting a cure; when the
 bowels are tender, the Hydrarg. Creta is to be preferred.
 Confinement is unnecessary to the cure, unless when the
 constitution suffers. The best chemical tests cannot dis-
 -cover during a salivation, the least particle of mercury
 in the saliva, blood & urine; & if it is not in the
 urine, it is not to wish.

182. The patient is given a small quantity of the following
may be employed in August. Dose: 9th
The patient is given 1/2 of the following in 1/2 of the following.

The patient is given a small quantity of the following in 1/2 of the following. The patient
should also be kept in a cool place, & exposed to cold air.
The patient's tongue is swollen & hangs out of the mouth. A piece of
linen should be placed over it, & fastened round the neck, &
the patient's tongue; & in 24 hours it will be returned.

Dr. Cooper thinks that if mercury were rubbed in
in a patient who had not the venereal
disease it would produce all the effects of that
disease.

The Dystherma mercuriale is a disease brought
on by the use of mercury, which often destroys life; the cuticle
over each papilla of the skin disquimates, & round the roots
of the hair & in some places where there is no hair, there is a
circle of inflammation. It begins in the groin & thighs,
proceeding to the abdomen & thence to other parts of the body.

sometimes the system is ulcerated deeply & there is much constitutional irritation, & it destroys by affecting the organs of breathing; in some cases every spot becomes purple. It sometimes arises from exposure to cold, but often from an irritable state of the skin. The great cure to be taken is a lotion of equal parts of Aqua Calent & the should be applied over the whole surface; among other remedies as Bark, Sarsaparilla & counter-irritation. The use of the nitrate of lead have been of service as an irritant in the throat. Mur. ^{acid} & the Calist has been employed. The use has been said to have been given with success; but Dr. Cooper has always been afraid to give it.

It is also I believe the same. Some children di-
seases are very rare in age; the ophthalmia catarrhus
of the joints of the glands & phthisis pulmonalis are such.

A Scrophulous Dea then may be known by the following
marks: a thin skin whether such a skin is lost or not
can be even distinctly seen it; the skin is generally fair;
the hair & compact skin is not a sign of scrophulous; the
is light, & the pupils of the eyes dilated in a light & bright
the eyes of other children are contracted; the eyes are
the roots of the hair surrounded with secretion; the
up is thickened, the fingers long, & the joints thick. It
- down who perspire much, & have pimples on the face are
scrophulous. Scrophula may occur in an irritable or in an
insolent temperament; but in the former it is much easier
than in the latter; in the latter it is more difficult & re-
quires a longer time to restore health; but in the former
it passes from one part to another, & may be at several
parts at the same time. In the irritable it is more common

181. The fever of measles is an ordinary
 disease. The prodromic stage is such as debilitate the
 system, such as fever of any kind - scarlatina smallpox
 measles the fever of measles; did cowpox possess the
 same ^{stage} as smallpox, beside being not followed by eruption
 might on that account be preferred. It has been sup-
 posed that measles frequently follows cowpox; but when we
 are subject to eruptions that we cannot say they are oc-
 casioned by cowpox. Want of nourishment confined vi-
 tation & want of good air are also exciting causes.
 The eruptive stage is usually very obvious, but
 sometimes true the cause of enlargement of the glands
 of the throat is wanting, but we often see a redness of the
 throat, without inflammation & enlargement of the glands.
 The prostatic disease consists in a weakness of arterial
 action, by which means the parts are not completely
 supplied, & the blood has not a sufficient quantity of coagu-
 lable fibrine. In injecting sulphate of iron in

... of the ...
not being strong sufficient to ...
... The ...
... it is comparatively small ...
... in its texture; but this is rather the effect ...
... of the disease for it cannot be ...
... of the action & the digestion is consequently bad;
this state also extends to the other vessels & the ...
sometimes larger tender.

The impurity of the blood & the original debility in the vessels must be remembered in the treatment; the arterial action is to be strengthened, & which means a more perfect coagulation will be formed, & ...
... air, exercise good nourishment & ...
necessary; even to those who live in healthy spots large of air is often of service; the air should be dry & warm & ...
... the exercise should be such as to exhalate the

glands are much like excelsior in consistency of the
glands & joints. Versapanta is a good remedy -
Towle's solution has also been of service but it is
followed by bad consequences.

The absorbent glands are very frequently enlarged
from scrophula; when they are in an indolent state &
the skin is not red, they are loaded with a thin
matter which consists of sagittable lymph, when the
skin over them is inflamed they contain a mass
with a curdy substance; when they are ulcerated
the skin is inflamed for some weeks appearing of that
redness that is seen in babies after the loss of ^{one ear} ~~one ear~~
sometimes the rarely whole glands & lymph separate.

The glands of the neck are most subject to enlargement,
from being most exposed; for all the absorbents of the neck,
face & ears go to those; this enlargement sometimes dis-
troy's life, either by opening into the veins, by cau-
sing suppuration by disfigure, or by pressing on the

larger, & extending into the surrounding glands.
 It contains mostly matter from the glands of the face
 & the glands of the throat, it is often covered
 up. At first the treatment is to be the same as in an
 inflammation from other causes, remembering that
 the patient is incapable of bearing such active
 treatment as others can who have a stronger
 body. If of calomel, & of ʒss of camomile or violet,
 should be given every 4th or 6th evening - not often.
 Mercury should not be given so as to excite a mer-
 curial effect; evaporating lotions should be applied
 such as Aqua Lithar. Acet. Comp. ʒss. Sp. Vint; if
 suppuration is apprehended, leeches should be applied;
 but if it has gone on to suppuration, & is allowed to
 break of itself, a large scar remains; when therefore
 we are certain that matter is formed, it should be cleared

... But if when it has supplicated the skin is
inflamed & painful, it should not be closed, for it will
be long in healing & a scar will remain. Then it is
best a lotion of vitriolic acid or sulphat of zinc
should be applied which will prevent suppuration &
the formation of a disagreeable mark; in Men a wound is
of little importance; but in Woman it may be the
means of defeating her great object of getting married.
It has been vulgarly thought, that the applica-
tion of a poultice occasioned a larger scar, but this
is a false idea; & it will be proper to apply a poultice
when we cannot prevent suppuration.

In scrophulous ulcers the following treat-
ment is proper: R. Unguent. Simp. Zi
Ferri Precipit. Zi ss. M. &
They will heal well by applying a solution of

...the patient should be kept in
 a warm bed; the calomel given; & the tepid wa-
 ter bath, or a bath made of 60° of water to 45° of
 salt, should be used at the same time: the heat
 of the bath should be from 90° to 94°; & the patient
 should remain in it 10 minutes; he should not go
 to bed directly, but remain in a warm room; it should
 be used three times in the week.

Intestines mesenterica, or scrophulous enlarge-
 ment of the mesenteric glands is known by the en-
 largement of the abdomen, ravenous appetite which
 arises from the absorbents being obstructed, so that the food
 cannot get into the circulation, to support the body; &
 the stools containing a white flaky matter resembling
 — is in fact chyle. The child should not be debarr'd
 its food as is often done from the idea that it over-eats

itself; the style in the stool is often mistaken by
 the parents for worms. Sometimes this disease in-
 troys life by inducing dropsy or by ulcerating
 at the navel when the matter is discharged; the
 intestine then adheres, & the faeces are discharged at
 the opening. Calomel with scammony & rhubarb
 should be given; & the Hydrarg. Mer. has more effect
 on this than on the same disease in the neck. The diet
 is to be light & nourishing, & wine should be allowed;
 a large plaster should be laid on the abdomen,
 to keep up perspiration; especially if there be pain
 in the abdomen. If ascites be brought on the water
 should be drawn off by Paracentesis.

Scrophula in the joints, vulgarly called
 white swellings because the skin is not discolored, is
 divided into three stages: the adhesive, suppurative,
 (and) ulcerative; it is very slow in passing thro' these stages.
 At first there is little pain, but the joint is stiff, & a little
 swollen; but sometimes, more especially in irritable habits,
 & in *scrophula* in the hip joint, the pain is considerable; it
 continues in this state in some cases for months & even years.
 But suddenly & most frequently in the spring, active in-
 flammation & suppuration commence; the pain becom-
 es violent & the enlargement considerable; the constitution
 is affected, & the rest & appetite impaired. This suppurative
 inflammation then lessens, or at least does not grow worse
 for some weeks before the matter appears; a fluctuation
 is then felt which is attended with very little tenderness;

first a track of inflammation being or ulceration & the abscess opens; but this opening is seldom opposite the joint, but burrows between the skin & muscles for some inches before it opens; & this is a fortunate circumstance, for the joint not being laid open, does not remain throughout. so that the constitutional symptoms are not much increased.

The discharge of matter continues for a long time - even for months or years; the ultimate consequence is ankylosis; which is either of the gelatinous or osseous kind. & in this symptoms sometimes attend ulcerations of the joint; & amputation then becomes necessary; but this is not required so frequently as was formerly supposed.

On dissecting a scrophulous limb we find more the skin a considerable quantity of fat, tho' other parts of the body may be thin; this arises from the constant increased determination of blood to the part; the ligaments are found thickened, & the synovial membrane inflamed.

involved in a great quantity, the articular
 surfaces are absorbed so that the ends of the bones are naked,
 & lastly the ends of the bones are absorbed.

The very slight causes will induce it, such
 as walking to fatigue, & tho' the patient usually attri-
 butes it to some accident; yet in reality it most frequent-
 ly occurs spontaneously.

Treatment. Rest is necessary; & a determination should
 be kept up to the skin for so long a time, as to destroy
 the internal inflammation; this determination should
 be constant, for if it be soon omitted the inflammation will
 return; the best application for this purpose, is the Lin-
 iment. *Ammoniac* [℥] *℥*ss. *Salin* - to be used morning
 & evening; when the determination is produced we should
 continue to apply it until the effect declines when it is again
 to be used. Vinegar & nutmeg may be employed for the
 same purpose when it is required to effect a return

... it is given in great doses, & the
... in 4 cups. If much constitutional ir-
ritation be present, saline medicines should
be given; but if this irritation be considerable, a
...
... may be used; the latter is a good remedy in the in-
ipient stage of the disease. If there be much swelling,
Hydrargyrum may be given to promote absorption of
the matter; the Mist. Hydrarg. c^m ferro is very good espe-
cially in young women at, or just after the age of puberty.

In a firm suppuration, & where there is
danger of suppuration, we must purge actively & apply lee-
ches; & fomentations, & the hot bath, of about 95° or 100°. could
be used every night at bed time.

When the inflammation is extensive, the blister should be applied, & kept open by the savine ointment; for the more easily deepening it opens the outlet, & the matter is discharged; else the ointment has little effect; if the inflammation is also local, but they must be applied to the skin, & not on the joint; for in this case the joint will inflame. If the matter be discharged, & the sinus heals, the blister should be applied, with an opening, 'till it covers the sinus; if there be not much inflammation in the joint, a lotion of vitriol acid may be injected.

The disease usually ends in Ankylosis, either of the gelatinous or bony kind; in the former there is a loss of motion in the joint; & it is in these cases that Mr. Gossamer of Oxford, has deservedly obtained considerable credit by the employment of friction.

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But if this kind of disease is to be regulated all
motion will be lost.

If such inflammation be present that it is plain that
Ankylosis must follow, we must next consider in
what position this had best take place; in an
extended arm should be in a state of complete flexion;
if the disease be in the shoulder, the arm should be
kept close to the side; the elbow, & knee, should be
in an half bent position; in this way each will be
as useful as a stiff limb possibly can.

The amputation of a joint on account of scrophula,
will not prevent its occurring in another part, if
the constitution be not good; & life is seldom in
danger from the disease. Amputation can only be a-
voided, when the constitution will support the disease
no longer.

Scrophula in the hip joint differs from the disease in
other parts, sometimes it begins with great pain at other times

with the pain in the knee; & on its account it is often
 mistaken for disease in this part; to ascertain the na-
 ture of the complaint, the Patient should be desired to
 raise the knee up to the abdomen; on the diseased side
 this cannot be well done, the Child appearing as if it
 hurt; on rotating the leg pain will be felt in the hip;
 when the Patient lies on his face, on the diseased side there
 appears a greater distance between the nates & trochanter
 major than there is on the other side; the leg at first
 appears longer than the other, the lymph effused into the
 joint thrusting it downward; but on the Patients lying on
 his back if the disease has made some progress the leg
 appears shorter; which proceeds from the absorption of
 the fluid in the action of the muscles then cramping the thigh
 muscles. The disease goes on to suppuration, & the matter
 is discharged from the joint, & the Child is cured.

Instrument. A blister which is better in fact, as
it applied: together with the diet and bath of flaxseed,
hot water; sometimes there is such a swelling as to be the
very much a fracture; this proceeds from the absorption
of the cartilage; by which means the ends of the bones become
united.

The distorted spine was just a bit more bent. Both, I have said, in all cases, it consists in an absorption of the bodies of the vertebrae, the spinous & transverse processes remaining, but pushed back. The Disease originates in the intervertebral substance & proceeds to destroy the bodies of the vertebrae; even 5 or 6 have been destroyed; & I have seen a specimen where a cure had been effected after 5 had been destroyed. A rupture is made in the

spinal cord is indeed; but the muscles are rigid & not
 so, as in true palsy. Paralysis is sometimes, taken
 place independent of disease in the cord; in this case
 it proceeds from an effusion of lymph pressing on the
 spinal marrow. The bladder & rectum, are paralytic;
 when it takes place in the neck the legs & arms are in the
 same state. After the disease has continued for consi-
 derable time, it begins to heal; & the vertebra become
 united by ankylosis - for a cure will not be effected,
 if the bodies of the vertebrae are kept asunder. It
 often kills, either by producing pressure abrupt, or in abrupt
 which opens into the lungs.

Treatment. Issues or vesicles are to be applied; the latter
 is the easiest, but the former is the best; if a vesicle

and it would consist of one with the same
 one should be placed on each side; the other should
 be the size of a shilling, not is any larger, for it
 it has in little chance of cure. Machines & instruments
 body, & recent deformity, are generally used in the
 for in the operative state, by keeping the articulation
 der, they prevent an union. But if the ankylosis has
 begun, their use may be admitted; but their use
 then can be but little. The general health is at times
 time to be taken care of, as in other kinds of contracture.

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The Psoas & lumbar abscess

It is in reality the same disease; an affection of the spine causes the formation of an abscess in the ligament of the vertebra, & the matter descends by the psoas muscle to the upper part of the thigh; or if it commences on the side of the vertebra, it comes out at the loins.

The psoas abscess commences with a pain in the loins, which continues for months before any appearance can be perceived; there is a stiffness in the part, & a pain extending down the thigh in the direction of the anterior crural nerve; in the lumbar abscess the pain is in the course of the sciatic nerve. After the pain & stiffness have continued for some time, a swelling in the loins, about the size of a walnut, appears, situated between the femoral vein & pubis; at this stage it is frequently

mistaken for femoral hernia; especially with debates
 on coughing, which is usually considered as the distinguish-
 -ing mark of hernia; the abscess enlarges, extends down,
 & does not pass over Poupard's ligament, as hernia does, but
 under the fascia of the thigh. It may also be distinguished
 from hernia, by not disappearing when the patient lies down,
 & by the preceding symptoms of pain in the groin. As the
 swelling increases, it still descends, even one-third down
 the thigh; after a considerable time it bursts thro' the fascia,
 & a more evident fluctuation appears under the skin; in
 this state it remains long without alteration; at last the
 skin inflames, ulcerates, & a small opening is formed, thro'
 which the matter is gradually discharged; clots of lymph
 stopping the opening, prevent its too sudden discharge; but
 as the clots give way, more is discharged, & the abscess is
 gradually emptied. When the abscess is forming the

206 constitution is but little disturbed; but in about five days after the abscess is opened, very violent constitutional irritation commences; the fever recurs once or twice in 24 hours; rest & appetite are lost; & the patient becomes worn out. This is usually the termination of the case, tho' the period is uncertain.

On dissection the disease is found to commence in the ligaments of the spine; the matter burrows until it reaches the psoas muscle; thro' the middle of which it courses until it reaches the tendon; it then leaves this muscle, & passing under Poupert's ligament, appears on the thigh; it extends under the fascia lata until it ulcerates thro' it & is discharged. But it does not in all cases appear on the upper part of the thigh; & in some cases it has been seen on the outer side of the femoral vessels.

The lumbar abscess begins on the ligament near the transverse process, & extends by the tendon of the latissimus dorsi; resting over the sacro-lumbalis & quadratus lumborum it makes its way to the skin on the loins; it is generally a long time before it bursts, but it is not so slow as the psoas abscess; the time depends on its situation with respect to the tendon of these muscles.

Treatment. Issues or setons should be applied to the loins, to take off by external irritation the ulceration within. When the disease has proceeded to the thigh, & the abscess can be opened, it should be done by a lancet or trocar— not where the integuments are thinnest, for this part will not unite again; but where the integuments are thick; the matter should be drawn off once in 10 or 14 days, according to its quantity; that is, when half the former quantity is accumulated, it is to be opened

again: allowing it to heal in these intervals. But as the matter is only the effect of a disease which still continues in the chine, issues setons, or perpetual blisters must still be continued. If the abscess burst spontaneously it is much worse than if it is opened; the opening must not be large, as the fatal termination may thus be hastened. Portions of bone have been discharged, & still a cure has been effected; indeed this exfoliation always takes place, if the constitution can ^{be} supported long enough. The treatment of lumbar abscess is the same as in psoas abscess.

Scrophulous ophthalmia

Differs from the common ophthalmia in beginning like an ulcer on the cornea, or tunica conjunctiva near to the cornea; opacity is an early symptom, & is increased by the inflammation; if the disease commences on the cornea,

it is with a pit, on the cornea it commences with a bubble, which has a pit on it; the opacity always continues, unless it be the effect of adhesion in the cornea, when in time it may disappear.

Treatment. Calomel & scammony or rhubarb, are to be given every 4th or 6th day; & Hydrarg. cum ʒi or ʒss with decoction of linchona or Sassa-parilla once or twice in the day; this preparation of mercury is excellent in this disease; & assists considerably in restoring the vision — in short in all cases of strophula in divided doses it is an excellent remedy; the bark, muria-lic acid, or natron, may also be employ'd with advantage. A good local remedy is the following:

℞ Argent. Nitrat. q^{ui} — ad ʒj

Aqua fontis ʒjss to be applied:

to the sores by a camel hair pencil; or Ung. Hydrarg. ʒjss

Nitrat. diluted with about half its quantity, or more of

simple ointment applied in the same way. The gel

loving have been also employed.

℞ Aq: Calci \bar{i}^m Calom: 3i - ad ʒ

℞ Opū 3ʒ. M

Or ℞ Opū & water; or ℞ Opū Vinosa; but Mr Saunders has never found benefit from the last.

Lippitude,

Or basal Ophthalmia, is an inflammation of the sebaceous glands on the cartilages of the upper eyelids; the secretion is altered from a sebaceous to a curdy fluid, which seals up the eyes in the morning; the eyelids are red; & the lashes are separated by suppuration; & sometimes the edges of the eyelids themselves are destroyed.

Treatment. The following Lotion is proper:

℞ Aq: Calci ʒi

℞ Aq: Calci 3i ℞ M & if the

membrana conjunctiva is affected a blister should be applied to

the temple; the constitutional remedies are the same as in other exophthalmos cases.

Scrophula in the Testis

usually takes place from the age of 17 to 22; but Dr. Cooper has seen it in a Patient aged 5 years; it sometimes appears like a tubercle at the epididymis; at other times the body of the testis; but it generally involves the whole testis; & in some cases it has affected the *sapicula seminales*, & ends of the *vasa deferentia*; of all scrophulous diseases this is the most easy of cure. Mercury should be given, even so as to affect the mouth; & long: Hydrarg. ^{an} Camphor: applied. It often affects both testes at once; it is attended with little pain, tho' the testis may be considerably enlarged. If matter forms, the testis often warts after it is discharged.

Children sometimes have scrophulous eruptions on the face, hair, or other parts; which are covered with a large yellow crust. Hydr: Mercurii ^{an} Calais should be applied as hot as it can be born; this brings off the scab first, & then applies itself to the skin; back, Hydr: mercurii & camphor & calome,

the eyes are improper, & the lids are swollen, the eyes are to be
 kept in a position of the eyelids & the accumulation of the tears.
 The lotion is to be introduced between the eyelids. Some di-
 charge: Rect: comp: has often been used with success.

Rickets.

Scrophula in the bone is an early disease, proceeding with
 it, & is generally accompanied with scrophulous affections of the
 menstrual glands; hence the body is deprived of its nourish-
 ment; the bones have but a small quantity of phosphate of
 lime, are spongy, & are extremely apt to break; the wrist
 first, then the other joints become much enlarged. The head
 becomes enlarged so that it is sometimes mistaken for hydro-
 cephalus; for there being but little bony matter in the crania,
 the brain has room to grow from the yielding of the parts,
 & hence the intellect is usually sharp. Ricketty persons,
 when they grow old, are stronger than others; the menstruation
 accommodates themselves to the bones which are larger than those

of the bones is such that for the bones which water
passing through the pores are all the cells filled up with
a spongy matter.

Treatment. The Patient is to be allowed nourishing diet
broths, &c. & little vegetable food; he is to bathe with
lukewarm water & also to be employed. When the Patient
is recovered strength, first till the instruments may
be used to improve the form.

Mollities ossium

It gives rise to rickets in principle, tho' the effect is the same,
in the latter the spongy matter was never deposited, in
the former the absorption is more rapid than the deposition.
The bones are spongy as in rickets; but this proceeds from
the absorption; for the deposition is natural.

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November

Two of four kinds: the incised, the punctured, the lacerated, & the compound wound. The incised wound, besides the separation of parts, is attended with more or less haemorrhage, & its more remote effect is to excite inflammation, which takes place in a few hours & the surface becomes covered with a glaucous matter. The first object is to stop the haemorrhage, which if possible, should be done by pressure alone — or by pressing a dressing of lint against the vessel, which causes the blood to coagulate, & stop the vessel. Ligature should not be used, if pressure can be employed. The edges of the wound being brought together, the inflammation gives rise to a coagulated blood is never the bond of union, as is commonly thought; nor does it assist, except that in wounded vessels the clot helps to fill the vessel, while the inflammation joins the edges together. It is best then, to wash away with a sponge all the coagulated blood; for otherwise

211 Lymph is a fluid & is deposited in the wound in im-
perfect? In a few days vessels can be traced in the
lymph that is effused; they proceed from the surroun-
ding parts & not from the lymph itself as Mr Hunter
supposed; it arises from the increased action in the
vessels; & the coagulable lymph yielding they become
absorbed into it; 10 Days is usually enough for this
process. The new formed substance takes the nature
of the part from which it is effused; the new vessels do not
resemble the old at first; but they afterwards become so;
the rete mucosum is the last that is restored. But there
are exceptions to this rule; for if the cartilages of the ribs
be broken, the substance reproduced is not cartilage, but
bone; except in young animals, when they are reunited by
cartilage. If a muscle be divided, it is reunited by
cartilage & not by muscle. If a bone be united by carti-

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detached lymph, & the glandous part, the
new joint's part. Union by adhesion will take place
between bone & muscle; thus if the capsular pericranium be sepa-
rated from the bone, & laid down immediately, they will unite,
& the same takes place in cylindrical bones as well as in flat ones;
on this account the practice is much altered from what it was;
for formerly the surgeon would cut off the parts & unite, but
by laying it down we prevent exfoliation. Articular carti-
lages will not unite with integuments; the sinovia
secretion preventing it; for the articular cartilages are not
sufficiently vascular to take on the adhesive inflammation.

We must not be deterred from endeavouring to produce ad-
hesion because the parts are much separated; for union may
take place if a slip remains from which vessels can shoot;
at least in other animals, parts that were entirely separated
have been reunited; a man's tooth just drawn with a small

218. *Union by apposition* is made to grow in the
 case of a cock; & the Lucas of Guy's Hospital describes
 a dissection in which the spine of a cock was made to
 adhere firmly to the bone of the head.

Union may be produced by adhesive plaster, or
 suture; if the former be used, there should be interstices
 between the strips; for otherwise the blood or matter may be
 kept up, & prevent good adhesion from taking place. Ad-
 hesive plaster is most generally used; but there are
 cases as in wounds of the lips, cheeks, lips, &c. &c., which
 will not unite without suture from their constant motion,
 & they without force to keep them steady; sutures are also ne-
 cessary in triangular wounds of all parts, especially when
 they extend to the muscles; but in deep transverse wounds, we
 must be particularly attentive to posture; for relaxing
 the muscles will keep the edges in contact when no suture can

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do it, & it is improper to put a suture two weeks on re-
count of the inflammation & spasm which are apt to follow.
If a ligature be pass'd round a vessel, the part at which
this is done cannot unite by adhesion; hence arises the
propriety of stopping haemorrhage by pressure if it be possi-

ble; in a stump the principal artery alone should be secured
by ligature; for a tight bandage round the stump will
prevent the others from bleeding; but every artery between
bones should be taken up; as pressure cannot be made on them.

A number of ligatures cause the formation of matter, & prevent
adhesion; if a stump be opened before the 7th or 8th day, the
adhesive process is disturbed; if there be considerable pain and
tension, the external dressings may be removed before this period,
but the adhesive plaster should not be taken off 'till the above
time.

If many absorbents be divided, or if the wound be
accompanied with confusion, adhesion can seldom be effected;
all wounds that have united by adhesion, may be considered

as safe; & the progress of healing is quicker by this method than by any other way.

Scoriated wounds are attended with less hæmorrhage than incised wounds; they are often filled with extraneous bodies; & are dangerous from their being often followed by tetanus; tho' this is more frequently the consequence of puncture wounds. The treatment is the same as in incised wounds; but here sutures are more dangerous; if the inflammation be considerable, leeches should be applied, to prevent suppuration. The constitution generally suffers much; & N. & purging are necessary.

Coulaged wounds differ from the preceding, in not being capable of uniting by adhesion; but the parts must stough & granulate. Fomentations & poultices are necessary, & also leeches; the constitution is to be supported, & emetics & antimony given, after the bowels have been eva-

- healed; bark is unnecessary at the commencement of the separation; it should only be given when the constitution becomes weakened; no seton or adhesive plaster is necessary, nor only when a corner of skin is turned up. Contused wounds entering into joints, or cavities of the body, generally destroy the limb or life.

Punctured wounds are the worst sort. ~~The~~ ^{They} pierce the absorbents, or the fasciae & the tendons, or the nerves, causing lock'd jaw.

Section III. The effect of a punctured wound on the absorbents is to produce inflammation of them; which shows by red lines feeling like cords with knots where the valves are placed, extending under the skin from the wound to the next absorbent gland; which gland is enlarged; sometimes matter forms in the absorbents, especially in those of the thigh & leg; the glands also often suppurate.

The constitution is much affected; sometimes it is dis-

thought; & this is particularly the case in puncture
 wounds made in dissecting; & these have indeed great
 in a long time. This effect does not arise from the ab-
 sorption of any putrid matter; for it occurs often in open-
 ing bodies that have just died; & seldom happens in
 opening those which are very putrid; it depends more
 on the constitution than on the matter; & if the constitution
 be bad, a simple punctured wound will produce the
 effect. Local. If the inflammation be not great, the
 effect of the puncture will be prevented by scraping a
 piece of Argentum Nitrat. sharp; & thrusting it into
 the wound; or if the wound be deep, nitric acid should
 be drop'd into it. But if there be considerable inflam-
 mation present, caustic will increase it; but resolu-
 tion, poultices, & leeches should be applied & the an-

stimuli are of no account to be used under the idea
of frequency; for death must be the consequence.

Dilating the wound frequently gives relief, but it does not answer as well as caustic; but if the inflammation be such as to render caustic improper, dilatation should be had recourse to. The Speculations to account for the phenomena of a punctured wound, contrasted with what happens in an incised wound, are various; Mr Cooper thinks they arise from a peculiar wound in a peculiarity of constitution; a punctured wound opening the cellular membrane lays open also the absorbents, which inflame as far as the glands; but in an incised wound the orifices being opened fully, they become filled with coagulable lymph or blood, & the inflammation does not enter in

The punctured wound is a cold kind in the
 inside & more so by an open & field.

The effect of a punctured wound on the fascia, &
 even in the thick part of the thigh is very dangerous;
 the inflammation & swelling of the parts is brought on, &
 matter forms under the fascia; & as the fascia does
 not easily ulcerate, the inflammation is very con-
 siderable; entering thro' the fascia & making it an in-
 closed wound, gives an opportunity to the matter to
 escape.

When the nerves partake of the injury, tetanus is fre-
 quently produced; but tetanus does not constantly follow
 injury of the nerves; it is more frequently proceeding from
 injury to tendons; especially those of the feet & hands.

A commotion with stiffness about the neck, resembling

But which necessarily attacks the jaw first, becomes
 fixed, & the muscles of the back, limbs & abdomen affected & the
 muscles feel hard & stiff like a board; the countenance
 has a smile very expressive of the disease call'd risus
 sardonius, & lastly the muscles of respiration are affected;
 it is sometimes said to affect the heart; but this is very
 uncertain. The pulse is quick, & the body covered with
 a cold sweat. There are 2 kinds of Tetanus the acute &
 chronic; the first destroys life soon, without giving time
 for the application of remedies; but the other kind is often
 recovered from. Opium, I.S. & the warm bath, have been
 often tried without success; & in this climate J. B. Cooper should
 not be induced to try them in the acute kind. Mr. Stocker, the
 surgeon at Guy's Hosp^l gave \mathcal{R} $\text{Opii } \text{ʒi}$ at a dose with
 effect. In chronic Tetanus more has been attributed to

moderate than it occurs, & a great number have
 occurred spontaneously; steel, & the cold bath have
 been employ'd, & the cases have succeed.

Tic douloureux without other symptoms, may occur after
 slight injuries; & even from cold; but tho' it used former-
 ly to create much alarm, it is not dangerous. Elec-
 tricity in the form of aura is the best remedy, but shocks
 & shocks rather increase the disease. This remark
 is applicable in all cases of spasm.

Wounds of the Arteries.

An Artery may be known to be wounded, by the blood
 being of a florid color & discharging free saltum - especially
 if the artery be of some size. Fainting comes on, & the
 action of the heart being thus weakened, the blood ceases
 to flow; this affords an opportunity to find the
 site of the vessel; we should therefore encourage the patient,
 & not apply volatiles. Bleeding from an artery is then
 stop'd; the artery contracts, not at the extremity but along
 the vessel to the first anastomosing branch of any size;
 & thus a resistance is made to the force of the heart, the
 vessel also retracts into its sheath; & the blood accumula-
 ting round its extremity it becomes stop'd; thus if an
 artery be but half divided, it bleeds; but when cut thro'
 blood ceases to flow. If an artery be lacerated & thus

but little, sometimes the cellular membrane of vessels, contract & form a sort of ligature over the vessel, & thus prevent haemorrhages; at other times it is done by the vessels having collapsed from losing its cylindrical form by the jerk.

Contused wounds of Arteries do not appear dangerous at first; but when the sloughs separate the sudden haemorrhage frequently destroys life. Punctured wounds, produce all the appearance of Aneurism; the blood cannot escape, but is extravasated into the cellular membrane; a pulsation is felt; & what is called spurious aneurism is produced. When an artery is divided; in inflammation causes an effusion of lymph to unite it; or a clot forms, & the inflammation produces an union of it to the sides. Blood is conveyed by anastomosis after an artery is tied; but the anastomosing vessels slow in

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opening. it takes place soonest in the arms; but in the
thighs & legs it is not for many years.

Treatment of wounds of Arteries

A Tourniquet should be immediately applied; but if
the wound is too high to allow of this, pressure should be
made at the groin by means of a key; the brachial artery is
easily compressed, by pressing above the clavicle. Turning
the head a little on one side, & raising the arm, to do it more
conveniently; or if, from the Patient's being a stout man, it
cannot be done at the clavicle, it may be practised in the
axilla. In cutting down on the artery, the incision should
be three inches long, to get a good exposure; the effusion coagu-
lates blood, renders it indistinct; but laying it completely
bare, & excluding the nerve & vein, it is to be taken up with
the tenaculum. Ligatures are not necessary to secure the
arteries of the scalp; if the hemorrhage be free, a lancet
should be passed down into the wound to divide the artery;

230th A ligature should now be introduced into the wound & secured by a bandage.

The carotid artery can rarely be tied; for an hæmorrhage from an incised wound destroys the Patient before the Surgeon can come to ~~this~~ ^{his} assistance; but in a laceration around this vessel may be tied, taking care to expose the par vagum; for if this nerve be tied, death is certain; the jugular vein is nearest the surface, & the nerve is between it & the artery.

To take up the subclavian the external jugular must be divided; the incision is to be made directly above the clavicle, & external to the sterno-mastoid muscle; it is situated at just $2\frac{1}{2}$ inches from the sternal end of the clavicle; there are many nerves at this part.

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The subclavian has been tied below the clavicle, under the pectoral muscle, by Mr. White, but

it is preferable to tie it above the clavicle, on account of the quantity of muscle that must be cut thro' if taken below; & also because of the number of vessels that must be cut thro'; & because the pectoral muscle must be tied.

The axillary artery requires nice dissection, to prevent injury to nerves; this artery has not been cut except in amputations at the shoulder joint.

The brachial artery should be taken up with the tenaculum, to avoid the median nerve; from which it must be carefully separated. This artery is often injured in bleeding; in taking it up, if only the upper part be tied, the hemorrhage will continue; but on securing the lower part, the bleeding ceases.

The ulnar artery is to be taken up by the ~~tenaculum~~ tenaculum, carefully avoiding the cubital nerve; the incision is to be made external to the tendon of the

The radial artery, which is very superficial when the hand is bent back come to under the first digit; the nerve is to the outer side of the artery, & close to it. It is necessary to tie it both above & below; otherwise it would bleed freely by anastomosis.

The radial artery is more frequently divided than any other in the body, from its superficial situation; the incision is to be made on the outer side of the flexor carpi radialis; & it is to be tied both above & below. From its proximity to tendons it is best to use the tremulum, tho' no nerve accompanies it; when the artery is divided between the thumb & forefinger, so that part of it retracts among the tendons, it should be tied between the finger & thumb, & also at the wrist: & no incision is to be made among the tendons, where it is divided.

The femoral artery is frequently wounded;
 & the operation is the same as that directed in Popliteal
 aneurism - i.e. an incision is to be made on the sartorius
 muscle; its inner edge is to be directed inward
 outward; by which means the femoral sheath
 is exposed; the sheath is to be cut thro', & the artery is
 appear; the vein & nerve are to be avoided.

To secure the popliteal artery requires accurate
 anatomical knowledge, & a firm mind; we first
 cut down on the sciatic nerve, which is to be carefully
 distinguished; it is situated $\frac{1}{2}$ of an inch above the ar-
 tery, & a little to the outer side; cutting beyond this the
 artery & vein are exposed, the vein laying exterior to the
 artery. This artery has been tied in popliteal aneurism,
 instead of the femoral: but it is very dangerous.
 The posterior tibial artery is difficult to

234 In case, especially in the case of high laceration;
a longitudinal incision is to be made 4 inches long,
& lay bare the gastrocnemius muscle; its muscular
fibres are then to be divided at the inner side, trans-
versely, but not across; the fibres retract as the in-
cision is made, so as to make a wide wound & ex-
pose the artery; care must be taken not to tie the
posterior tibial nerve or vein, which accompany it;
if the surgeon do not succeed in tying the artery,
the limb must be amputated. If lint or sponge be
put into the wound to stop the hemorrhage; inflam-
mation, mortification, & death will ensue. At the place
where it is situated behind the malleolus internus,
the artery is easily found; & its pulsation is felt with
facility.

Mr. Kez tied the interosseal artery, by sawing away

a portion of the fibula; but Mr. Cooper thinks this unnecessary, as the artery is easily come at; it lies close on the inner side of the fibula.

The anterior tibial artery is very difficult to secure at the top of the leg; Mr. White of Manchester, was unable to tie it; but exposed it, & made a future with sponge; suppuration came on, but haemorrhage did not recur; & as the difficulty of tying it at the top is so very great, the Surgeon would be justified in pursuing this plan; no nerve accompanies this artery. Low down, & on the foot it is easily tied.

Wounds of Veins.

The largest vein may be wounded in the external part, without danger to life; M^r Cooper has seen the axillary vein wounded, & also the femoral vein at Poyard's ligament: In such cases the hemorrhage was easily stopped by a dop of lint, & no bad effects followed. But in a large opening into a vein, there is danger of inflammation; & sometimes even in 1. S. great inflammation is excited, & destroys life. The symptoms which follow wounds of a vein are large & broad redness running along the arm above & below where the wound was made; matter forms on the inner side of the vein, which sometimes opens externally; & at others into the vein where it mixes with the blood; this is very frequently seen in the jugular vein when they have been bled in the jugular vein. The wound must be fomented & poulticed to cause a formation of matter as quick as possible & the opening is

these such as cantharides & other irritants. Some effects arise from the size of the wound - from its not being closed - & from an inevitable constitution.

It is dangerous to make a ligature on a vein; it has been frequently done on the saphena major vein, in cases of varicose veins of the leg; but in many cases it has terminated fatally. Mr Cooper related several cases of this nature; in one instance he divided the vein without making a ligature; but this also terminated fatally. Even if the vein could be tied with impunity, the varix is not cured by it; & a bandage is required, as if the operation had not been performed; it is better therefore to use a bandage at first without running the risk of killing the Patient.

Properties of Nerves

The division of a nerve destroys sensation & the power of voluntary motion in the part; & the involuntary powers are also impaired; the arteries continue to act, tho' their power is weakened;

in which it is excited, & excite inflammation. A nerve becomes united in a time proportional to its size; a small nerve is restored in from 5 weeks to 3 months; a larger requires from 4 to 6 months; & in the division of the sciatic nerve in a Man in Guys Hospital, 8 months elapsed before he could use the limb, tho' electricity assisted the process considerably. A nerve is united by the formation of a ganglion between its divided extremities; but if the ends are not in contact, the union is made by a small filament; it is not known whether this conveys sensation, or not. The ends should be kept in apposition, if possible.

Tendons are divided either by a cutting instrument, or by muscular exertion; but the treatment is the same in each. When the tendo Achillis is divided, the heel is to be raised, so as to approximate

the rupture of the tendon, the patient should be kept in bed 4 or 5 days; superficial dressings may be applied; but no pressure is to be made on the wound, lest the tendon become glued to the bone, or tibialis posterior muscle; a piece of adhesive plaster should be passed from the sole of the foot over the heel to the calf of the leg, when it may be confined by a wire passing round the leg, to keep the foot properly extended; when the patient gets out of bed, he should wear a high heel shoe. Sometimes this tendon is ruptured by the actions of the muscle alone; as happened to Mr. Hunter in dancing; the high heel shoe is to be worn. & when the inflammation has subsided, the patient may be allowed to walk.

A rupture of some fibres of this tendon, or of the gastrocnemius muscle is very troublesome; the sensation

is, as if something, as a black line, & a disruption
is soon discover'd at the part which becomes cover'd
with the erysypelas. As soon as the accident has hap-
pen'd, the treatment must be the same as if the tendons
are completely ruptur'd; for if time be lost, lame-
ness will continue for many months; if the heel of
the shoe be made $1\frac{1}{2}$ inch higher than usual, the
patient may walk about; it may be cur'd in 3 or 4 weeks.

Wounds of the Abdomen

Wounds of 2 kinds; such as injure a viscus, & such as open the
cavity without wounding its contents. The viscera have
in their extent of motion on each other, very great power
of closing a wound. When no viscera are wounded, the
edges are to be brought together by the quill-stature; &
this is usually enough.

The Stomach. When the stomach is wounded a faintness, paleness & a scarcely perceptible pulse are the symptoms; by keeping the Patient low & on the mild-
-est food, this has been recovered from.

When an intestine is wounded, & does not protrude, the Patient must be kept quiet, & reduced by bleeding; if it protrudes, & the wound be small, a thread is to be tied round the wound, to prevent extravasation of the faeces into the cavity of the abdomen; the intestine then to be returned, the thread hanging out. In a large longitudinal, transverse, or circular wound, the interrupted suture is to be employ'd; if the interrupted suture be us'd, the faeces will be extravasated & the Patient will die. In a transverse wound ^{Dr} Thompson found by experiment on animals that if the ligature be cut close to the intestine, & be not suffered to hang out the wound

It will be removed by a tool; but it is far better to let it hang out. Small wounds of the liver have been recovered from; but a rupture of this viscus is both frequent & fatal. A wound of the gall bladder is fatal. The spleen may be taken out with impunity; but an extremely small wound in it, is fatal to life. A wound in the kidney may be recovered from.

Lecture 41st

Wounds of the Chest

Like wounds of the abdomen, of 2 kinds; those which penetrate the cavity only; & those which wound some of its organs. A wound of the chest is marked by the following symptoms. When the patient makes a deep inspiration, the air enters from the wound; but in expiration a part of the lung is

parts of the wound. The integuments should be ex-
 amined by culture, & between the incisions, pieces of
 adhesive plaster should be placed to shut up the cavity
 more closely; if no sutures be used the wound will give on
 inspiration. It is more difficult to treat when any of
 the viscera are wounded. When the lungs are wounded
 frothy blood is expectorated, it bleeds much at the external
 wound, there is emphysema, & great difficulty of breathing,
 especially if the wound be small. This accident is frequently
 followed by three dangerous consequences: first
 hæmorrhage; to stop which h. l. should be carried on again,
 & when the hæmorrhage is thus stopped the wound is closed
 & not before. The second dangerous consequence is inflam-
 mation of the lungs & pleura; known by pain between the
 scapula, & in the head; when the pulse begins to rise
 the h. l. is to be stopped. The third dangerous conse-

the ~~operation~~ ^{operation} is the ~~operation~~ ^{operation} of the heart. The
 is known by the ~~operation~~ ^{operation} coming on at a dis-
 tinct period, - a difficulty of breathing continually in-
 creasing.

Mr. Cooper never saw a wound of the pericardium,
 but Mr. Hunter informed him of the following case. The
 patient did not suffer much at first; but after a few
 days difficulty of breathing & oedema of the lower extremi-
 ties & dropsy of pericardium came on, & he died. On
 opening the body, the inner side of the pericardium was
 found inflamed, & a clot of coagulated blood in it.

A wound of the heart is soon fatal, but not so soon as
 is generally thought; the patient becomes pale, the
 pulse is hardly felt, but the senses remain perfect; the
 wound contracts so that very little blood is extravasated.

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A rupture of the heart causes instant death as also a wound of the aorta or vena cava.

Wounds of the joints

Are very dangerous, for two reasons: 1st from the extensive surface which is opened by a small external wound; & 2nd from the parts not adhering without a separation of some portions of them — for the cartilages of the joints ulcerate & ulcerate before they granulate. A wound of the joint is known by the escape of the synovia; if the divided parts can be made to unite, no inflammation will take place; but if the union is not effected, it will suppurate — the matter is discharg'd by more than one abscess. If the constitution be good, a recovery may be effected with ankylosis; but if the constitution be not good, the limb should be amputated. Treatment. If the integument cannot be

brought together by adhesive plaster, & then sutured
 to each other; but this should not be passed thro' the ligament.
 M^r Cooper has seen a case where no ligature was used, & the
 sinovia burst open the plaster, & prevented the union, when
 symptoms of suppuration came on; it was then kept shut, &
 an article of lead poultice applied; adhesion then took
 place, the matter was absorbed, & the Patient recovered with
 no anchylosis. A considerable quantity of opium is
 required to allay pain & prevent restlessness. When the parts
 granulate anchylosis is the consequence; this is of 3 kinds.
 1st when there are only granulations between the bones, & the
 processes of bone arise from the bones, altering
 their figure, & impeding their motion; in this 2nd kind
 M^r Grosvenor has been very successful by friction &
 motion; in the 3rd kind the bones are united by bone;

the cartilages being absorbed or separated, & the larynx
fixed.

Wounds of the Throat.

In speaking of these, the position is to be considered as elevated,
as in this position the wound is most frequently made. The
distance from the chin to the sternum is about 9 inches, & it
will be of great assistance in description, as well as in practice to
divide the parts in the throat into 3 classes, according to their
situation. The first 3 inches from the chin downward include
the tongue before, & the pharynx behind; & this is generally
the place where the wound is inflicted, in the attempt to
commit suicide. The appearances are these: on closing the
mouth the air rushes out at the wound; as does also the food in
an attempt to swallow; from this symptom many have
thought the oesophagus to be wounded; this however is not

The case of the scapula is very rarely wounded
 The skin is to be brought down towards the breast, & the in-
 teguments approximated by suture; over this adhesive
 plaster is to be applied; & over all an handkerchief, ap-
 plied tight; The chin is to be bound down on the breast,
 in order to prevent the sutures being torn thro' by the mo-
 tion of the head. The second 3 inches includes the third
 & divided cartilages; these are seldom cut thro' but if the
 instrument passes between them, it may penetrate deep;
 they have been so lacerated, that pieces have been cut out,
 & the pieces hang almost divided, & pass into the lungs & at-
 tain, causing great irritation; the air escapes, but no
 liquid or solid food. If the cartilage be cut thro', a
 ligature should be pass'd thro' the perichondrium, to
 confine it in its place; but the ligature is not to be pass'd
 thro' the cartilage itself; the integuments are then to be

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brought together. A suture is to be preferred to adhesive
plaster, in all wounds of the throat. as there is danger of
the parts being drawn asunder by coughing. but ligature
is not so necessary in these as in the first 3 inches. The Patient
may recover when pieces of the cartilages are lost.

A wound between the os hyoides & the thyroid cartilage is
extremely dangerous, tho' not always fatal; the epiglottis
is separated, & therefore food can pass into the larynx;
but Mr Cooper once succeeded in confining it in its proper
situation by ligature, & the Patient recovered.

The third 3 inches reach from the sternum to 3 inches a-
bove it; it includes the trachea below, the oesophagus,
behind & the carotids on each side. Wounds of the trachea
are not in themselves mortal; if the oesophagus be
wounded it must be thro' the trachea; the air escapes
out thro' the wound. If the trachea alone is wounded

A ligature should be placed thro' its substance at each ^{edge} ~~side~~ of the wound - one before, & one on each side to bring the sides in contact; if the posterior is also divided, it is fatal.

A wound of the Esophagus is fatal either from what the Patient swallows getting into the cellular substance & exciting inflammation; or from the esophagus not healing, starving the Patient. The former may be saved by introducing food into the stomach thro' a tube pass'd down the esophagus.

Hernia

is the protrusion of a viscus from its proper coat,
 12 kinds of Hernia occur in the abdomen: the inguinal
 which is the most common - the crural or femoral -
 the umbilical which is the second in frequency - the
ventral, protruding thro' the linea alba or linea semi-
lunaris - the peridantal, occurring in the labia pudor-
is, differing from the inguinal - the perineal, which
 is most frequent in the female - the vaginal - the
pericardial or Hernia parvissimi ovalis - the Diaphragmatic
 the Thoracic where the protrusion is thro' the diaphragm
 by the side of the oesophagus - Hernia of the neck.
Org. the viscus protruding thro' its lumen, as the

— microcolic is when it protrudes from the lumen of the microcolon. The two last produce no external tumour; L. Munro describes a case where the kidney was found projecting at the loins.

There are four kinds of Inguinal Hernia, the 1st which is most common, is call'd the oblique; it begins above the abdominal ring, & passes obliquely downward to the scrotum. The 2^d is the direct, passing from the abdominal ring straight into the scrotum. The 3^d is the congenital, where the intestine is in contact with the testis; it is so call'd from appearing soon after birth. The 4th kind is where the sac form'd of peritoneum, is within the tunica vaginalis; the intestine not touching the testis tho' the sac does.

The oblique, or common inguinal Hernia, begins midway between the symphysis pubis & spine of the ilium, passing directly over the iliac artery; in part lying the abdomen it is covered by the tendon of the external oblique muscle only; for the others are thrown upward by the protruding viscus; turning 2 inches or 2½ inches, obliquely inward, it appears at the external ring; it is then covered by the aponeurosis from the external oblique down to the scrotum; this aponeurosis is thin in the natural state, but it now becomes very dense; it is also covered by the cremaster which is thicker than the Hernial sac. Mr Cooper was more anxious to point out these coverings, as Surgeons performing the operation, have mistaken the iliac

is for the hernial sac; but having these things in mind, the surgeon will operate with confidence & safety. The spermatic cord is usually posterior to the hernial sac; the epigastric artery is inside the neck of the sac; & the testis is placed below the bottom of the Hernia.

Hernia vary in size; some are so large as to extend the scrotum even down to the knee, & others are so small as to require care to ascertain their existence. The spermatic cord is sometimes placed before the sac; especially in the larger sorts of Hernia; but tho' the cord is situated before the sac below, it is plac'd at the side above; hence it is not proper to carry the incision to the bottom in these varieties. Sometimes the whole of the cord, including the vas deferens, is

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situated in the peritoneum; but this is rare; in the
greater number of cases the artery & vein are before
the vas deferens behind. Sometimes this variety of
Hernia is complicated with Hydrocele; in this case
the water should be first discharg'd; when the hernial
sac can usually be return'd.

The Direct Hernia passes out of the abdomen im-
mediately opposite the abdominal ring. If in this
kind of Hernia the operation was to be performed in the
same manner as in the oblique, the epigastric ar-
tery must be divided, & the Patient would die.

The Hernia passes thro' the tendon of the transversalis
muscle; for the tendons of the transversalis & rectus
shut up the ring behind; & behind these a tendon is
stretch'd across to shut up the opening the more closely;

but from a disposition from birth, or by great violence, the fibres may be torn thro' & a viscus be made to protrude. In the direct Hernia, the sac above the ring is not more than $\frac{1}{2}$ inch long; & it is not covered by the cremaster, but by the fascia alone; so that there is less to cut thro' in this than in the oblique. In the living subject this Hernia may always be distinguish'd from others, by the spermatic cord being felt on the outer side. The direct Hernia is most common in age; & never becomes of the ^{large} size which we see other kinds sometimes are; but the smallest are in general the most dangerous, from their being more easily strangulated.

Diagnosis of Hernia. It may be distinguish'd from other complaints by its increasing or forcible

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expiration & coughing; it descends in an erect,
& returns generally with a peculiar noise in a
recumbent posture. The transparency of the sac
it increase from below upward & it not disappear-
ing in a recumbent posture, will distinguish it
from Hernia. But it is very difficult to distin-
guish a cyst of the spermatic cord, ^{containing water} usually called Hydrocele
of the spermatic cord from Hernia; for if the cyst
be situated high on the cord, it may pass into the
abdomen on lying down; & increase on coughing; but
as we are not called upon to operate, nothing should be
done until it descends further, so that we can discover
by its transparency the nature of the disease.

Varicocele is often mistaken from Hernia; it enlarges
on coughing, & returns into the abdomen in a recumbent

pressure, especially on lifting up the testis; but it may be thus distinguished; the vein being emptied in the recumbent posture, let the finger be placed at the ring, to prevent the descent of any thing from the abdomen; but the circulation going on thro' the artery the appearance will be soon reproduced. An Hydrocele should not be injected unless we are certain that there is no hernia, or opening into the cavity of the abdomen; for inflammation & death will ^{then} ensue.

Hernia is often complicated with Ascites, & the sac is then much distended with water; at first sight it would seem proper to open the sac for the discharge of the water; but this is not proper, for tho' it is not dangerous, the water will not be evacuated.

Trusses. If the Hernia can be reduced, the Patient ^{should} wear a truss; & with a good one he is as safe as if he had no Hernia. The simplest trusses are the best; in the oblique Hernia, the neck of the spring should be shorter than it is usually made; so that the pad should rest on the ring where the Hernia first ^{leaves} ~~comes from~~ the abdomen; to take a measure for a truss, a cord should be passed round the pelvis below the spine of the ilium. In the direct Hernia the pad should pass at right angles with the spring, so as to cover the whole rupture; there 2 kinds of trusses are all that are wanted, for any kind of Hernia. In a young Person a truss may effect a cure in 4 or 8 months, but it should be worn at least 2 years, that the Parts may regain their tone; if the Hernia be large, the truss should be worn

during the night; but if it be small, & if the
 he takes it off after he is in bed, & puts it on before
 he gets out, he need not wear it at night. If
 there be an Hernia at both sides, a double Truss
 must be worn.

Irreducible Hernia.

The Hernia becomes irreducible, from 3 causes; from
 its magnitude - from membranous bands forming
 across the sac; & from adhesions of the sac & its contents;
 as long glass contraction of the sac may also be the
 cause. There is always danger from blood, which may
 burst the intestine, & kill the Patient. Gibbon the Historian,
 had such an Hernia, that all the intestines except
 the caecum were included in it; & the stomach was
 drawn down to the orifice of the sac. These cases

is capable of being reduced. When a hernia occurs suddenly, & is apparently irreducible from its size, ice should be applied to the part; it should be introduced in a bladder, that it may not wet the parts when it melts; by constringing the scrotum, & pressing on the parts, they become readily returned; Mr. Cooper has applied ice for 3 or 4 days, before it succeeded.

If an Hernia has been long irreducible from its size, constant pressure by a bandage is of service; if it does not cause it to return, it at least prevents its increase.

When it is irreducible from bands or adhesions, an attempt to return it is generally useless; but a spring or bag truss is sometimes desirable, to prevent increase or strangulation of the tumour; but many cannot bear a spring truss. Mr. Cooper has seen an Hernia irreducible from the osmentum pressing round it. The osmentum

varicellous, becomes cancerous, when induced in the hernial sac; the disease is communicated to the scrotum & testis.

Lecture 43rd

Strangulated Hernia

Is that state in which the intestine is so compressed that the circulation is retarded, & the passage of the feces prevented. The symptoms of this state are: a pain across the region of the stomach & diaphragm, as if a cord was tied across the part. sometimes, but not always, there is pain & tenderness in the tumour; air is eructated, & when the strangulation is removed this is the last symptom that ceases; the Patient vomits, & its violence is in proportion to the degree of strangulation; when this symptom is very violent the operation should not be long delayed, the bowels are constipated; after a

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short time the inflammation comes on again
seamen, & the tumour gets on progress; at first the
pulse is hard & quick; but after a time it becomes
quick & thready; Surgeons have been misled by this
symptom & omitted to open blood, but it will
be found that the pulse will rise after V.S. The abdomen
now becomes tense & tender, the intestines above the
stricture being filled with air; when the abdomen is
tender to the touch the operation is to be safe than
before; it is best to operate before this tenderness comes
on; for if it be gone to any extent the Patient will
die from inflammation. Abscess frequently follows
this tenderness; but this symptom does not indicate
the presence of mortification; but only that the
intestine is dispos'd to go into that state. When
the intestine is mortified, the tumour becomes
distended, crackling to the touch & the skin over

it has a pink tinge; the pulse does not at this time change to what it is in a state of health, but will be found to be soft & intermittent; & the Patient feels easy & thinks himself better.

The seat of the Stricture is in three different parts: 1st at the abdominal ring, especially in old hernia; 2nd at the place where the protrusion commences; 3rd bands across the sac, or a contraction of the sac itself, may be the cause; we are to be very careful to discover if any such cause exists & to remove it.

On Dissection of a Person who has died from mortification of the strangulated Intestine the following appearances are found: serum, & sometimes air are found effused under the skin; the coverings of the sac are thickened & the sac itself soft & tender; the membrane is of a reddish color, cracks on pressure &

the yellow & small ...
... of the blood which is found in the
veins after death, with black spots where it is con-
densed; coagulable lymph is found on the intestines;
& sometimes holes thro' which the faeces have been ex-
truded into the cavity of the abdomen; the in-
testines are inflated, glued together at the sides,
with ~~the~~ red lines marking the place of contact;
the stricture part is often found ulcerated.

The cause of strangulation is whatever in-
creases the pressure of the viscera on the aperture by
which the Hernia depends - such as coughing, ex-
ercising or any violent exertion.

Treatment of Strangulated Hernia.

When the tumour is very tender to the touch, the topi-
cals must not be used; but the Patient must be bled
freely, cold lotions applied, the obacis removed.

up. But when no symptoms forbid the latter is first
 to be tried; the Patient is to be laid on his back,
 with a pillow under the nates, to relax the abdomi-
 nal muscles; for which purpose also the knees
 are to be brought together, & the thighs plac'd at
 right angles with the body; or one thigh may
 be plac'd across the other, & close to the abdomen.
 The tumour is to be grasp'd with the right hand,
 pressing it towards the orifice with the finger &
 thumb of the other hand which are to be plac'd at the
 upper part of the tumour; but the force us'd should
 not be great, as it may burst the intestine. The
 press should be continued 20 or 30 minutes; & if it be
 then unsuccessful, to try it again without it be in
 conjunction with other means, is time thrown away.
 Ten or 20 ℥ of blood are to be drawn according to the

age & strength of the Patient as to produce
syncope; if this do not succeed the warm bath
'from 100° to 110°' is to be employ'd; The object of this is the
the same - i.e. to produce syncope; & without that they
are useless. We should not try to reduce the Aernia
untill the faintness is produced - But the warm bath
is on the whole, an inferior means, & often fails. If
the Aernia is not reduced by these means ice is to
be apply'd, & the tobacco enema thrown up; & ex. these
we are principally to rely. A bladder is to be fill'd
with pounded ice, or great parts of maceint of
monia & nitrat of potash in powder, dissolv'd in
water; this is to be apply'd for 3 or 4 hours; & if the
Aernia be not thus reduced, at least the progress
of the disease is arrested; the tobacco enema is to be
employ'd at the same time; the following proportion
is to be us'd; & if more of the tobacco be requir'd

after letting this stand for 10 minutes, & is to be
 used as an enema, having waited 20 or 30 mi-
 nutes, if the Patient be relaxed, but if he remain
 so should be thrown up; if this does not succeed
 it is some time before the Patient is strong enough
 to undergo the Operation.

In the large, & sometimes in the umbilical
 Hernia opium & calomel, followed by the neu-
 tral salts have been of service; but in the ge-
 nerality of cases cathartics are wholly useless.

Operation for oblique Inguinal Hernia.

Having taken off the hair from the pubes, which
 must be done with care, for if any get into the wound
 they will excite great irritation, an incision is to
 be made from the upper part of the abdominal ring,

downwards according to the size of the tumour;
four inches of incision is enough for the largest
Hernia; for as the vessels run over the sac at the
bottom of a large Hernia, a longer incision might
be dangerous; the external pudic artery is di-
vided at the first incision, & bleeds freely; but
it is to be secured by the tenaculum, or by pressure
from an assistant; this incision exposes the aponeu-
rosis of the external oblique; this which is now
much thickened is then cut thro', & the cremaster
is laid bare; this also being divided, we come to
the Hernial sac. The sac is to be taken up between
the finger & thumb, & roll'd so as to free it from the intestine,
& a small opening is to be made into it; fluid very often but
not always escapes thro' this aperture; its quantity depends
on the quantity of intestine down, & we should operate as if
we expected to find none. The opening in the sac is to be

dilated with the history so as to permit the finger to pass into it; a bistoury is then to be introduced on the finger to dilate the sac; but it is dangerous to dilate as far up as the orifice; the finger is now to be pass'd up to ascertain the situation of the structure; the finger, with the knife lying flat on it is to be introduced before the intestine, & we must cut opposite the middle of the Hernial sac, gradually so that the finger may pass into the abdomen; if we cut straight upward, we cannot injure the epigastric artery; if we dilate inward in the oblique, or outward in the direct Hernia, this artery will be injured; & when we consider how easily one of these kinds may be mistaken for the other, the propriety of cutting upward is evident.

Treatment of the mortified intestine.

Cutting open the terminal sac, the intestine appears of a dark color; & if we find on it black spots which easily give way to the finger, we may conclude that they are mortified - there is usually also a fetid smell, & tho all the intestine in the sac may be of a dark color it is very rare that it is all mortified. Surgeons have been accustomed to cut out the mortified piece, & approximate the parts by ligatures; but the gases find their way between the ligatures & death is the consequence. Some have returned the intestine confining the mortified part at the wound by a ligature passed thro' the osmentum; but this is also improper for an artificial anus is always produced, & generally continues for life, even should the patient survive the operation. The following practice has

When the bowels are evacuated, & the scybalæ are removed, that
 it will become more successful than any other. After di-
 viding the stricture, an opening should be made into
 the intestine about 2 or 3 lines long, & it should be freed from
 the faeces which it contains; the intestine is left to heal
 naturally. Thus the symptoms will be relieved; & as soon
 as the mortified parts have completely slough'd, the
 wound will close, & the faeces be evacuated by their na-
 tural passage.

When the omentum is mortified, W. Key recommends
 that a ligature be put on it, & that it be left in the pu-
 er to slough; but in Mr. Cooper's opinion this is improper
 practice; for it be left to slough, this process will continue
 for a very long time & be attended with a great discharge.
 It should be cut off above the stricture part, & the in-
 teguments brought together; the wound speedily unites,
 & the Patient soon recovers. If what we call a liga-

there on the concomitant of applied in the dead part if it is
 of no service, & if on the living may divide the structure
 which acts no otherwise than as a ligature? Mr C expresses
 great respect for Mr Hey; but thinks that further experience
 will induce him to change his mind in this particular.

The removal of the portion of omentum is neither dan-
 gerous nor painful; & the divided vessels are easily
 secured; the part from which the portion of omentum is
 cut, should remain at the orifice to serve as a plug.

It is right to use a truss soon after the Operation to
 place the parts together, & prevent another descent. The
 edges of the wound are to be brought together by sutures,
 & the Patient kept in a recumbent posture. No medicine
 is to be given very soon after; opium is improper, as tending
 to produce costiveness; but if there is no stool in 8 hours small
 doses of magnesia vitriolata are to be given; we must
 fear peritoneal inflammation, & if it comes on, leeches

force must be applied to the abdomen.

In a very large Hernia it may be dangerous to lay open a large portion of the intestine; or if a considerable quantity has been long down the abdomen may have contracted, & will not receive it, & if much force be used the intestine may be burst; or if we succeed in returning it, cough or a little exertion may again force it down. Under these circumstances, & only under these, tho' it has been recommended in other cases, the following practice may be adopted: in large Hernia the stricture being at the ring itself an incision 3 inches long is to be made on the ring; a small hole is then to be cut thro' it after which a director is introduced that passes over the ring - a director introduced, & on it the ring divided, leaving the hernia untouched; pressure is then to be made on the Hernia

to return it, as if all will not pass up to where as much is
possible. But if it cannot be returned when the ring is
divided bands may be suspected. They are therefore to be
searched for & divided. The Patient is to be bled freely, as
inflammation in the abdomen will prove fatal.

Very small Hernia is sometimes strangulated above
the ring; the operation is more difficult than in the other
kinds; the incision is to be made midway between the
spine of the ilium & symphysis pubis obliquely, so as to
lay bare the tendon of the external oblique, & it is to be
extended down to the ring; the tendon is then to be cut
when the sac is exposed. We next open the sac, introduce
the knife, & divide the stricture towards the spine
of the ilium.

Hernia Congenita

Takes its course in the direction of the spermatic cord; the
intestine is contained in the tunica vaginalis testis, which covers
the cord; it generally appears soon after birth, but this is

not water, & the cover, & sometimes it does not appear on
 bill after the blood is in the scrotum. The hernia is
 generally a moderate size by a birth; but when it
 is not, the infection depends on crying or passing urine violently,
 & the hernia is called the windy rupture. But tho' the hernia
 is small may not be closed, it does not follow that the
 scrotum will descend immediately. nor indeed that
 it will descend at all. The congenital Hernia may be
 distinguished; in the common inguinal Hernia
 the testis is felt below the sac; but in this species it is
 involved in the Hernia.

Treatment in the reducible state. A bulb of the common form,
 but without a spring, should be applied; for an infant
 cannot bear the pressure of a spring, & we must therefore
 depend on the understraps for sufficient pressure. when
 it is less than 30 or 4 months, a very slight spring may be

employed. if in a case of inguinal Hernia, by the time
not decided, no truss should be applied until the tumor
is the scrotum, otherwise to prevent the descent.

If this kind of Hernia be connected with Epistaxis, it
is dangerous to inject it, but a truss must be applied
to close up the orifice, & cut off communication betwixt
the tunica vaginalis & the cavity of the abdomen. The opera-
tion is the same as in Inguinal Hernia; but in this
case the tunica vaginalis is not to be cut down nearly so
far, lest this organ be drawn up thro' the wound. If the Hernia
congenita adheres it is difficult to treat, it is best to remove
the ring without opening the part in which the intestine is en-
tangled, & to leave the Hernia untouched.

Sometimes Hernia of the tunica vaginalis is included in
scrotum, in these cases the tunica vaginalis does
not close where it leaves the abdomen, as at a;
but just below a set b; the intestine is



...into this cavity, & ... the ... part
into the forming it ...

Lecture 43

Femoral Hernia

Poupart's ligament sends off two processes upwards; these are the fascia iliaca, which covers the iliacus & psoas muscles & shuts up the abdomen; & the fascia transversalis; it also sends off a process downwards, called the fascia lata; but tho' the former processes shut up the abdomen, a space is left for the passage of the femoral vessels; they are inclosed in a sheath which is formed by the fascia transversalis on the anterior part, & by the fascia iliaca posteriorly. The femoral Hernia passes from the abdomen into this sheath, pushing it before it, as it advances; for it is always as completely covered by this sheath, as it is by its peritoneal sac.

The bag which is formed by the sheath has a narrow neck, which is the seat of the stricture. The fascia lata covers the femoral sheath, but is deficient where the saphena major vein, & the absorbent vessels enter, forming a distinct margin below them. The Hernia pushes thro' this opening, the sac & sheath being pushed before it, & lies before Poupart's ligament.

Femoral Hernia commences under Poupart's ligament on the inner side of the crural sheath; the femoral vein is situated on the outer side of the mouth of the sac; & the tendon of the external oblique rests on the inner side; the epigastric artery is $\frac{1}{2}$ inch on the outer side of the mouth of the sac; & the spermatic cord for in the female the round ligament runs on the fourth; but no vessel is so near as to risk the danger of being wounded in the operation. The Hernia passes down

The femoral vessels appear at the hole in the fascia lata; the sheath then gives, is thrust forward & the hernia appears externally; it passes thro' the aperture in the fascia lata & is open into the scrotum & perineum; when it appears in the groin it is easily moved, & may be mistaken for tubo.

This like other kinds of Hernia, descends in the erect & returns into the abdomen in the recumbent posture; it also dilates on coughing, but is rarely of any considerable size. The contents are, intestine & omentum - sometimes the ovarium, & bladder are included in the sac; & the uterus has been found at the mouth of the sac.

Diagnosis. It is difficult to distinguish a femoral from a small inguinal Hernia, but the latter is found on the inside, & the former on the outside, of the

intercourse of the penis; the possibility of communicating
between these species of Hernia is obvious, for what is a
Hernia in one, will in the other section be a Hernia.

Rare ~~abscess~~ agrees with general Hernia in situa-
tion, is dilatating on coughing; but the abscess never
returns into the cavity of the abdomen, is attended by
no colicky pain, or gurgling noise. The indurated
tumour in the groin may be distinguished by not dilata-
ting on coughing, & not returning into the abdomen at times.
Enlargement of the lymphatic glands frequently
accompanies this Hernia; & when symptoms of Inflan-
tation are found to exist, with glandular enlargement,
Hernia may be suspected behind the gland.

Dissection. Dissecting back the integuments we
we find the aponeurosis of the external oblique loaded
with fat; but no sign of Hernia is to be seen except:

the lining; before this we find the bottom of the
 sac; cutting thro' this we find the bag, pointed
 by the peritoneal sheath; & included in it is the hernial
 sac, which is thinner than paper. Mr Cooper men-
 tioned a case, where in performing the operation the
 Surgeon mistook the bag for the sac; it was cut thro' &
 the Hernia was with some difficulty returned; the
 Patient died with symptoms of strangulation, & on
 examination by Mr C the sac was found unopened.

Lecture 40.

varieties of Femoral Hernia. In some cases
 the Hernia has been pushed thro' the aponeurosis of the exter-
 nal oblique muscle; sometimes it is found in the femoral
 sheath not having yet passed thro' the semilunar ring of the
 crura lata. It produces a fullness but no tumour in the

The sac is not always very large, but is large
 in the scrotum, but a small part only is thrust forward
 thro' the opening, so that the sac is lifted. Mr. Cooper
 has also seen a double sac, appearing like an ingui-
 nal femoral hernia, but having only one aperture in
 the abdomen; the sac had burst on the inner side & scrotum
 & had formed over the ring, where the hernia had
 become strangulated. When the oblique ring is given
 off by the epigastrium high up it runs across the mouth of
 the sac, but this occurrence is very rare, & need not make
 an alteration in the operation on that account; provided
 we use a bistoury with a blunt edge near the point.
 Treatment. If the hernia be reducible a high truss
 that ~~is~~ ^{recommended} in direct inguinal hernia should be used.
 tho' if the hernia be small the common inguinal truss
 may do. The pad should rest on the inner side of the
 femoral vein. If the truss be not such as is recommended

for direct inguinal Hernia, which will be reduced
by drawing it from its place; but indeed it is often
done with a proper truss; ^{which} ~~is~~ is the reason that
femoral Hernia is scarcely ever cured by a truss.

We must be very careful not to mistake irreducible
femoral Hernia for obscure, & open it, as has often happened.
In the irreducible state it often ulcerates, forming an abscess.
From the feeling we can ascertain that
it is intestinal, a truss with an hollow pad to secure
the tumour should be worn; the pressure will make
the tumour much smaller by causing an absorption
of the omentum. But if an irreducible femoral
tumour is seen in the intestine, a truss cannot be worn.
Strangulated femoral Hernia. The symptoms are the
same as were described in strangulated inguinal Hernia.

but the manner of reduction is different. In this case we push the hernia against Poupart's ligament but we must push in a direction somewhat as if into the thigh; it is thus directed towards the superficial edge of the fascia lata & when it has entered the femoral sheath it slips into the cavity of the abdomen. In all the cases every other means of reduction is the same in femoral as in inguinal Hernia.

(Operation. The stricture is commonly seated at the place where the Hernia drives the femoral sheath forward thro' the fascia lata; the fascia does not produce the stricture, but only the sheath when it embraces the sac.

The incision should be made in the form of an inverted T; the first incision reaches from above Poupart's ligament down to the middle of the sac; the 2nd is made at right angles with the first; the angles are to be

towards the side to give a view of the hernia; the aponeurosis of the external oblique is first
 exposed in a very thickened state; this is to be cut thro,
 & turned on each side, & a very thick substance is laid
 open, which is the bag covering the sac; this being cut
 thro' the next appearance is as if the intestine was
 adhering to it; but when we examine by the fingers
 we feel a membrane which glides over the intestine;
 this is the peritoneal sac, which must be detected
 by the feeling, for the sight will be deceived. Having
 freed the sac from the intestine by rolling it between
 the fingers, a small opening is to be made into it; if
 the hernia is omental, the sac will contain water;
 & if it contain intestine, the quantity of fluid
 will be in proportion to the quantity of intestine

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down. The finger is to be pushed into the sac to ascertain
the seat of the stricture, but before touching it
the mouth of the sac should be dilated as far as possi-
ble, to have a view of the stricture, by which means
the operation is rendered less dangerous. If the hernia
be small the stricture is seated about $\frac{1}{4}$ of an inch from
Poupart's ligament, but in a large hernia the distance
is about $\frac{1}{2}$ inch; but Poupart's ligament has nothing
to do with the stricture, as has been supposed. The
mouth of the sac being dilated, a probe pointed like
an ear is to be carried on the finger up into the stricture,
which is to be dilated directly upward, or upward
with a slight obliquity inward. The difficulty of
going of cutting directly inward is such, that no one
would do it twice. Gimbernat supposing the seat
of the stricture to be at what is now call'd his ligament,

across the division to be made inward. But Cooper
 believes Ligament is not the cause of the stricture. The di-
 vision of it is useless. In a large femoral hernia,
 where there appeared danger of wounding the spermatic
 cord, Mr. Cooper cut down on the tendon of the external oblique
 & drew the cord upward with a tenaculum; & then opera-
 ted in the usual way.

Sometimes a portion of the edge of Poupart's liga-
 ment presses so much on the hernia, that it cannot
 be returned after the stricture is divided; in
 this case we must cut up further towards the edge of
 the ligament / without cutting the ligament itself di-
 viding the tendon as well as the stricture.

Umbilical Hernia

Is more frequent than femoral. There is at the umbilicus an aperture in the tunic for the passage of the funis. This hole is filled up by cellular membrane, but the peritonaeum behind it is as perfect as in other parts; this Hernia has therefore a sac, tho' some Surgeons have supposed this not to be the case. But sometimes the sac bursts from excoriation or ulceration, & the intestine is partly out of the sac; sometimes it becomes strangulated in the hole in the peritonaeum. The size to which this Hernia will grow is sometimes very great; & even all the viscera have been contained in it. When umbilical Hernia is large it becomes pendulous, & the orifice is above the centre of the tumour, so that to reduce it, the pressure must be made upwards. There are 3 species of Umbilical Hernia

1st That Hernia occurs in the groin after a violent exertion chiefly in the 2^d That a hernia is often a young child born with a very common. 3^d occurring in the groin of infants sometimes the lower extremities are affected in this kind of Hernia.

2nd In the reducible Hernia of the 1st kind a truss should be employed. The truss used in general Hernia, but having the pad in the groin with the spring; the pad should be circular & not smaller than the breadth of the groin, the spring should encircle the abdomen. If when the Hernia is reduced, there is a considerable depression at the part where the groin ball should be placed under the pad on the crissie.

When Hernia of this kind is very large, the Patient will not be induced to wear a truss; in this case a broad belt reaching from the ribs to the upper part of the thighs should be used.

The things should be worn & it may be made to lie
on the side, inside this & over the Hernia, a piece of soft
board or of tin should be applied. The treatment of the
2nd kind is very simple: a piece of money or cork is placed
on the part where the Hernia projects; over this a piece of
adhesive plaster is applied, the whole being confined
by a belt & 2 thigh straps; when there is a great depression
at the orifice, an ivory ball may be used as in the 1st kind
of Umbilical Hernia. In the 3rd kind ^{where} most of the
viscera protrude, the life of the Child may perhaps
be saved by an operation. The contents of the sac are to be
returned, the mouth of the sac to be tied with a ligature.
The sac with part of the integuments to be cut off; the wound
is then to be closed by the first intention. This however is
not covered by the common integuments of the body
but by the umbilicus of the coccy; the contents are

care must be taken not to make the
 infection in the leg &c.
 & deciduous. Umbilical Hernia. A bag then
 becomes proper; it should be pass'd over the shoulder,
 & may be made to lace before; the size will thus
 be prevented from increasing; & if the contents be omentum
 a trypsin may be produced. If the hernia be small, a trypsin
 with a spring may be pass'd round the abdomen, with a
 pad resembling a cup.

Strangulated Umb. Hernia. If it project much, we may
 attempt to reduce it by passing backward & upward; but
 if it be large ^{Do not} & project much, pressure should be made
~~downwards~~ towards the abdomen; the muscles then
 sink, & the aperture enlarges, when the Hernia returns,
 sometimes there are 2 tumours, close to each other;
 care must be taken not to operate on the wrong
 one may be strangulated, & the other not.

After operation. One incision ^{1 1/2} inches long to be made in the upper part of the tumour in the direction of the linea alba, two inches being on the tumour & two on the linea alba; this incision lays bare the hernial sac, near to the mouth of which the operation will be performed; for if the sac be deficient, it is only at the extremity. The sac being divided the finger is to be carried to its mouth opposite the linea alba; the long is to be conveyed on the finger within the mouth of the sac, which with the linea alba are to be divided upwards. The intestine & omentum are then to be reduced.

In umbilical Hernia the aperture is to be made as small as possible; for the opening into the abdomen is direct, that there is great danger of inflammation & occlusion of the orifice.

In large Hernia it may be proper to make one incision along the tumour, & another at right angles with it.

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First, a catheter is to be taken up to the bottom of the tumour; having said
tumour is opened. There the finger is to be carried under the
arteries, & the knife being introduced, the dissection is
to be made downward towards the pubis; the intestine
being retained the flaps are to be brought together &
secured by the first intention.

In very large Hernia, & in this only is it to be done 1st
where has performed the operation by cutting down on the
linea alba & making an opening into it; 2nd this
aperture the finger is to be passed, & the linea alba
divided to the mouth of the sac; the intestine is then
to be returned without dividing the sac.

Scrotal Hernia

is situated in the linea alba, linea semilunaris, or
sometimes in the linea transversalis. This Hernia may

arise from 1 cause. 1. from laceration of the peritoneum,
 2. from deficiency in the linea alba especially in the lower
 part sometimes from violent exertions or blows producing
 laceration; 3. from a wound in the parietes of the abdomen.

The Operation does not differ from that for umbilical
 hernia; but Mr Cooper has seen a case so near the bottom
 of the linea semilunaris, that if the operation had been
 necessary great care must have been taken to avoid the
 epigastric artery.

Pudendal Hernia

In the female a Hernia may pass into the labia without
 going thro' the abdominal ring. It passes from the pelvis by
 the vagina, at the place where the crus clitoridis joins the
 perineum of the ischium. The bladder has sometimes been inclu-
 ded in this Hernia. It might be best kept up in a truss
 but used in *perilapnus ani*, which is in the form of a T with

the ring, but perhaps it may be a ligament.

Vaginal Hernia

Is of 3 kinds: 1st occurring between the vagina & rectum, pushing the former forward; it feels like a walnut in the vagina, & disappears in the recumbent posture on pressure. The 2nd occurs in the anterior part of the vagina, near the mouth; & the 3rd is seen at the side of the vagina; this is a very rare kind of hernia. A ligament is necessary for each kind of vaginal hernia.

Scheretic Hernia.

Dr Cooper has seen only one case of this kind, which was under the care of Dr Jones; no tumour was visible. On opening the body, the intestine was found passing between the sciatic nerve & obturator & gluteal vessels. If an operation should ever be necessary in this hernia, the opening should be made in the direction towards the scrotum.

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The Great Hernia or Hernia praecoxialis
Mr Cooper has seen only one preparation of this kind of
Hernia which never can be operated on.

Perineal Hernia

Is most frequent in the female, in which case it
passes between the vagina & rectum; in the male it comes
between the bladder & rectum. And in both it returns
in the recumbent posture.

Phrenic Hernia

Rises from malformation of the diaphragm or from acci-
dent, as a fractured rib &c. The symptoms are difficulty of
breathing & pain in the side. The intestine has also been
known to pass by the side of the oesophagus.

Mr Cooper shew'd us specimens of Mesenteric & Me-
socolic Hernia; & also an instance where strangulation
of intestine was produced solely by membranous bands twisted
around it.

Simple Fracture

The existence of simple fracture may be known by an alteration in the shape of the bone, & by its motion & by a crepitus produced by moving the ends of the bone on each other; but the last sign is very fallacious; for if the ends of the bones overlap each other considerably, no crepitus will be felt; & in many cases it takes place without fracture - as where a blow has produced a effusion of lymph, by which means the periosteum moves on the bone. But this circumstance does not take place until some days after, when the inflammation has arisen. In 3 or 4 days after the bone is fractured, inflammation comes on, with spasms of the muscles of the limb; on this account the bandage should

not be tight. The limb should be laid in a ²⁹⁹
proper position, & there is no necessity for a bandage until
the inflammation has subsided; but if as is some-
times the case, the Patient is anxious that it should be
bound up, the bandage may be applied loosely.

When the inflammation has subsided we find
the limb at the fracture, as moveable as at first, but
no crepitus is to be felt the effusion on the ends of the
bones preventing it. After the 10th day, union is going on
regularly; & in from 21 days to 5 or 6 weeks, the union
is complete; the process is quickest in young persons
& in small bones. For 4 days after the accident the
effusion of blood & its reabsorption are all that are
done; for the blood, as such has no share in producing
the union. But after the 4th day inflammation

union, and a jelly like substance is effused between the periosteum & bone, so that the former is loose; the effusion continues from the 3rd to the 10th Day, & it adheres more firmly to the bone than to the periosteum; this is the callus, & resembles the cartilage which supplies the place of bone in the fetus; in this the bone becomes deposited. The ossification begins in bony patches, irregularly placed; part of the cartilage is absorbed, & at last the union is obvious.

Callus is at first more vascular than the original bone, but is less so after a time; canulli & periosteum exist in the callus as in the original bone; but in those cases where the pieces of bone lie side by side, the periosteum between them is absorbed.

Sometimes callus is found so abundantly that the size of the bone is altered; & this arises from the same

tion of the soft parts & the consequent inflammation.

During the inflammation topical bleeding by leeches is proper; but when the enlargement is already decided, a mercurial plaster with pressure, will be the best method of producing absorption.

In the oblique fracture the callus is more slow in forming than in the transverse; care should therefore be taken to keep the bones in contact, by examining the limb often, & keeping the bandage tight; deformity generally follows the oblique fracture.

Sometimes no callus forms, & the bone is only united by ligament, by which means the limb is rendered useless; in this case Mr White of Manchester has proposed sawing off the ends of the bone, to produce union by granulations; but this does not succeed, & should not be

attempted; when a piece of excoriated bone between the fractured ends prevents union, taking off the ends of the bones may do good - but in no other case.

Some fractures are never united until the Patient has been seized with a fever; when it has taken place; in some cases by this fever has produced the union. Alter-
 every will not cause the bones to unite; but by applying a leather case very tight round the limb, this desirable object has been attained.

Sometimes spasms of the muscles will prevent a proper union; when these occur large doses of opium should be given. In old people, & in bad habits simple fracture, especially of the thigh near the knee joint, may occasion death.

Simple fracture of the leg, may be ascertained by

carrying the finger along the bone, when an irregularity
 may be felt; a fracture of the tibia generally occurs from
 3 to 4 inches from the malleolus internus & of the fibula
 about 3 inches from the malleolus externus. Strips of
 coarse or linen should be applied /not tightly/ on the
 limb. this tends to lessen the inflammation, keeps the
 extremities of the bones together & prevents the bandages
 from excoriating; over this a many tailed bandage
 to be applied; & over all 2 splints made either of wood
 or copper, or whale bone in linen; the latter is best in simple
 fracture; but in compound fracture they are not
 sufficiently strong. Wool must be placed under the
 splints to prevent their galling. The best position
 for the limb is on the side, with the toe elevated, to prevent
 distortion of the leg. The foot must be kept opposite the patella:

Simple fracture of the thigh. The cast should be
 very thick bandage are to be applied as the fracture of
 the leg & two splints are necessary - one to each side
 & 1 to the exterior part of the thigh; these are to be
 lined with wool; two pillows are required - one to reach
 from the buttock to the heel; & another rolled up to be
 placed under the knee. The best position is with the
 knee elevated, to keep the muscles properly relaxed.
 The Patient is to rest on his heel. Some degree of
 deformity always follows a fracture of the thigh but
 there is much less in this method than in any other.
 Mr White invented a box to keep the limb in this posi-
 tion. Mr Cooper never saw a case where the bone became
 fixed at the ends - but always at the sides. The thigh
 of children will better than those of the adult & so the
 roller is to be preferred to the main and bandage.

In simple fracture of the humerus the extremities are
 is displaced the external end appearing to be elevated but
 it is not actually so. The ends of the bone are to be kept in
 apposition; for which purpose a stilette bandage is re-
 quired & the arm must be kept in a sling; the
 bandage should be of linen & 5 or 6 yards long, & ap-
 plied round the shoulder to keep them back & across
 the back in the form of a figure of 8; the points of the
 arm being then brought in apposition the shoulder
 is to be kept elevated, by suspending the arm in a
 short sling. There is usually a degree of deformity at
 first, but this gradually goes off.

In simple fracture of the humerus 2 rollers & 2
 splints are required; the first roller is to be applied
 round the arm, becoming opposite the fractured
 part; the splint is then to be applied to the outer

side of the arm & the other to the inner side, and
 be confined by the second bandage. The splint
 may be made of wood or paste board; if the latter
 be dipped in water & applied, it will adapt itself con-
 formably to the part. The Patient should not be
 confined to his bed; but should walk about the
 arm being supported, but not raised by a sling.
 Simple fracture of the radius & ulna. The same
 bandages & splints are required as in fractured hu-
 merus; the latter are to be placed on the inner and
 outer side; & not on the radius & ulna, but between
 them so as to rest on both. A pillow should be placed
 in the sling in which the arm is suspended.
 When the radius alone is fractured, an impediment
 to the use of the hand is occasioned; 2 rollers & 2

splints are necessary but the rollers should not be below the wrist, for the hand should hang below the bandage, to prevent by its weight the drawing of the bone from its place by the action of the pronator quadratus. The splints should be placed on the outer & inner side, but should not press much on the hand, the hand should be kept with the thumb uppermost, or in the half supine position.

Simple fracture of the ribs & sternum. The treatment is the same ^{in both}. When one rib only is broken there is pain on inspiration; but there is no danger. When several of the ribs are fractured the Patient may die from extravasation of blood occasioning inflammation & suppuration; or from a puncture of the lung, causing emphysema; or from applying a bandage

when ribs are fractured on both sides. If when ribs
 are broken on both sides, no bandage is to be applied.
 In all cases, we are to bleed freely, & guard against
 inflammation. As a bandage either a gut or a ^{band} ~~band~~
 wet roller, may be used; & if pasteboard be plac'd
 over the fractured ribs, a better pressure will be made.
 the object is to prevent the action of the intercostal
 muscles, & to cause respiration to be carried on by the
 diaphragm alone. A fracture of the ribs cannot
 be discovered by pressure to produce crepitus; but
 may be known by the Patient's complaining of an
 acute piercing pain in the part, & by feeling a
 grating sensation on inspiration.

Fracture of the lower jaw, often proceeds from a
 blow on the angle, the fracture frequently occurring

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at a different place from where the skin was injured.
A piece of leather is required, with an hole in it to
hold the chin, & four strings; two of them pass over the
summit to the occiput where they are to be tied, &
the others pass to the occiput, & thence to the forehead
where they are also tied. The Patient is to be fed with
liquid food.

Compound Fracture

Differs from other fractures in having a wound by which
the ends of the bone are exposed; & if there be a wound
not communicating with the bone, it is not a compound
fracture. The process of union resembles that which
takes place in simple fracture; for the discharge
matter does not alter this. The use of the crutch

to prevent the substance of soft from being ~~drawn~~
 up by the air. A piece of lint should be applied
 with pressure, to stop the bleeding; & the limb
 is to be extended in a straight line, to effect a
 reduction. But if the spasm & resistance of the
 muscles prevent this, the attempt should be given
 over, & poultices applied; & when the inflammation
 has subsided, reduction should be again attempted.
 If the fracture is reduced at first, a manubrial
 cast is to be applied, with wood splints, to
 make a firm pressure.

The position to be observed, is the same as in simple
 fracture; but it must vary according to the situation
 of the wound: as for instance, if the wound be on the
 side of the leg, the position must be with the

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be burning in. We must endeavour if possible
to procure union of the wound by adhesion, for the
length of time employ'd in the cure is thus much
shorten'd. But if the wound be accompanied with
contusion, it is useless to attempt union by adhesion
it is therefore proper to apply poultices, to quicken the
circulation of matter. In endeavouring to unite the
wound by the first intention, adhesive plaster should
not be us'd, as it may irritate & do harm; but a piece
of linen should be applied, to let it become bloody,
it should then lie on the wound, confin'd by a roller.

When a bone is much splinter'd, every separated por-
tion should be removed; for if they remain they will
excite irritation & suppuration; if the splinters cannot
otherwise be extracted, the wound may be dilated;
but if a large portion of bone be separated with it, and

arteria remaining it can become united & therefore should not be removed. If the bone projects so far that it cannot be reduced should we dilate the wound, or saw off the extremity of the bone? the former is the proper practice in this case, & the saw should only be employ'd when the periosteum is divided, or the fracture is oblique; & if it can be conveniently done, the other extremity of the oblique fracture should also be saw'd off, to make it a transverse fracture. If much of the bone be remain'd lame it will often be the consequence.

Division of a large Artery in compound fracture
When the anterior tibial artery is wounded, it may be tied, & the Patient will generally do well.

When the posterior tibial artery is wounded, amputation is always required, for tho' the hemorrhage be stopped by future death will follow.

Amputation is always necessary in a wound of the femoral artery with compound fracture.

Mr Cooper has seen only one case where the brachial artery was divided; the arm mortified as far as the place where the artery was tied, when it was amputated just above.

Mr C never saw a case of division of the radial & ulnar arteries with compound fracture, except from gunshot wounds, when amputation was required, but in wounds of these arteries with compound fracture simply, we should endeavour to save the limb.

When a compound fracture is extended into the ankle joint, the Patient will often do well; but if the Patient

to old, or at the middle period of life, with a full & inveterate habit, we should amputate directly, & the operation be deferred in the latter Patient, such inflammation comes on, that the Patient soon sinks; & even amputation which gives him the best chance, is extremely dangerous. But in young persons, or those of a spare habit, amputation should not be resorted to - at least we should be in no haste to operate.

In some cases after a few days the Patient becomes restless & a great degree of inflammation comes on, with effusion on the skin of a brownish color, which is an indication of the utmost danger, as marking a great degree of debility; this is succeeded by a great discharge & swelling, so that we cannot amputate, & the Patient soon dies. From the danger of incuring this state it,

among the great evacuations in compound fractures:
but diaphoretic wine should be given. But when
the above mentioned dangerous symptoms come on, back
opium, & a generous diet should be had recourse to, with
leeches & stimulant evaporating lotions to the part as
Dr. Sumner: directs. Mr. Winsor stale beer given
proluctie - or a proluctie of wine lees. These symptoms
occur most frequently in high fevers & distress in
about 10 days.

In locked jaw from compound fracture, amputation
is improper, tho' it has often been proposed; for it is
found that the removal of a part that has caused
locked jaw, does not cure the complaint.

When exfoliated portions of bone are prevented from
separation, by the union of the fractured ends, amputation
is required; for the exfoliated portions irritate & cause
much distress & pain.

Extensive laceration of the ligaments & muscles may require amputation, but we need not be in haste to operate; for if the laceration be not attended with confusion, it may do well.

When amputation is necessary Mr. Hunter advises it to be deferred until the inflammation & irritation have subsided; but since the great improvement in the method of amputation, this advice is no longer necessary; & it should be performed immediately.

^{section 50th}
Fracture of the Patella is generally transverse, but it is sometimes longitudinal. The latter unites by callus; but in transverse fracture the upper portion is drawn up by the rectus muscle, even to the distance of 3 or 5 inches from the lower portion. The fracture generally happens from a fall on the knee; but may be occasioned by the action of the muscles alone.

The great separation of the portions of bone renders reunion impossible; & the new substance is ligamentous, because the vessels of the ligament shoot into the intermediate space; but if the parts are so approximated that the vessels of the bone can shoot from one portion to the other, callus is produced. The limb is weak after this fracture, which often occasions the breaking of the other patella. For the first week the ends of the bone are united by blood, which is then absorbed & coagulable lymph is deposited; & in a fortnight the ligamentous union is complete.

Treatment. The inflammation which usually supervenes is first to be attended to; a roller is not to be applied immediately, but evaporating lotions, & if the inflammation be very high leeches, should be applied for 5 or 6 days after the accident; & if the inflammation still continues a vinegar poultice is to be applied.

The reduction is now to be attempted by pressing down the upper portion gently day by day; then to prevent its being again scrawn up a cushion is to be applied where the matter is inserted into the patella, where it is to be confin'd by a roller in the form of 8, passing round the knee, across the cushion, round the thigh, & back again. To prevent stiffness the joint should have a gentle & passive motion, within a month or 2 weeks after the accident; this is best done by letting the Patient sit on a stool with the legs hanging over, when the limb may be mov'd by its own effort.

Mr C has seen the Ligament of the Patella torn thro' without fracture; this cannot be repaired, for if pushed down & confin'd, it will not reunite properly.

Fractur'd osseum. The treatment is the same as in the fractur'd patella. It is scrawn up about an inch above

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The union is when the union is bad, from 2 inches to 2 1/2. The union
is to be kept extended & the fractured portions well exposed
as near as possible together. The union is generally ligamentous.
A fracture of the thigh bone occurs generally in the
persons; the accident is known by the limb being shorter
an inch to 1 1/2, & by there being no crepitus, & by the foot
being turned outward; there is pain in the situation of the
fracture minor, & the limb can be brought forward the
with pain. The bones do not remain in apposition. The
callus is extravasated into the joint, for which reason
no union can take place & the limb is always short &
weak. If the fracture be outside the capsular ligament
union will take place.

Gunshot wounds.

any substance entering a body & inflicting a wound as a ball from a gun. Gunshot wounds are of 2 kinds: 1st where the ball has passed through & 2nd where it remains in the body. In the 1st kind the opening of the wound is very small, & the edge appears as if rent. In a few hours inflammation arises, & extends to a considerable distance, & in about 4 days a jelly like substance is discharg'd from the wound; in about 6 days the process of separation begins, & it is 10 days before suppuration is complete the sloughs separating sooner at the surface than deeper.

Treatment. The wound may at first be cover'd with lint, but within 24 hours fomentations & poultices should be applied, covering the limb with evaporating lotions to keep down inflammation; in hot weather a warm stimulus

this is more especially necessary. if the laceration be not very extensive the patient may be bled; but in these cases must be guided by the circumstances of the case, for if there be a probability of considerable sloughing, it will be injurious. The body should be opened freely, saline purgatives may be given but the principal reliance should be placed on opium, in doses of $\frac{9}{4}$ or $\frac{1}{2}$ or $\frac{1}{4}$ of a grain; for the mind is in an irritable state for a long time after.

When the inflammation begins, topical bleeding, by scraping the edges of the wound with a lancet, is very proper; it relieves the inflammation, & the suppuration commences earlier.

When the ball remains in the body it has been advised by all means to extract it; a probe made of flexible metal should be used to ascertain its course; but if its situation be such that it cannot be reach'd with ease, it should not be reach'd for, for the presence of the ball does not

number of men are engaged; but it sometimes
 have a great number round them, & remain during the
 without invitation; & if they be situated near a river they
 may be removed at a distant period. The course of the
 is so irregular that we cannot calculate on the place
 in which it might be found; & it will be discharged better
 spontaneously, than by the Surgeon. When a ball is
 lodged in a part where an abscess would be dangerous, or
 in the parietes of the abdomen, it would be right to remove
 it if possible.

A gunshot wound of an artery bleeds but little; but in these
 cases the Surgeon should give no decided opinion for a
 ball passing near an artery may injure it so that in a
 few days it sloughs & gives way, causing a fatal hemorrhage.

A wound of the Abdomen may kill in 19 hours; a wound
 of the stomach in 30 hours; but a ball passing thro' the rectum
 below the peritonaeum may be recover'd from. A ball passing

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Now the lunge is not usually fatal; a wound of the
chest is usually instantly fatal but not a lunge so. A wound
of the head when the ball is in any of the sinuses, it does not
always kill.

Compound fracture from a gunshot is worse than when
it proceeds from any other cause, the bone being generally
very much splintered; & unless the limb be speedily ampu-
tated, it generally kills. When it is near to a joint also it is
best to amputate; but a ball has passed thro' the knee
joint, & the Patient recovered without the loss of the limb.

Burns & scalds,

Produce 3 different effects; the danger is different in each, & the treatment is to be suited with denervation. The 1st kind is where mere vesications are produced. The 2^d; where there are vesications, & the cuticle is separated from the cutis to some extent. The 3rd is where the life of the cutis is destroyed; in which case sloughing must follow.

On the 1st kind it matters but little what is applied; but evaporating lotions as Spi. Tini & Camphora - Aqua Sithargyri Acet. Comp: & Spi. Tini - or vinegar & water, are the most proper; the inflammation is lowered, & a new cuticle is produced. If the cuticle be unbroken there is no danger, tho' the vesications be to a great extent; & on this account it is extremely improper

to open the vesicles; for if this be done & nothing 325
will take place. Some Practitioners have been accus-
tomed to apply a poultice in these cases, but bad effects
are observ'd to follow it - such as suppuration & the
want of cure. When suppuration has begun it has been
stop'd by evaporating lotions.

The 2nd kind is most dangerous; there are shivering,
involuntarily, with coma, & the Patient often dies without
any hot fit occurring. A scald from the combustion
of hydrogen appears to be different from that occasioned
by other substances - the latter being more dangerous.
A small scald will sometimes produce very bad
effects - as is often seen in Children dropping hot tea or
water into their bosoms. This 2nd species of scalds appears
to kill by affacting the muscles of respiration.

The extremities of the nerves are to be coated to pre-
vent the irritation consequent on their exposure; for

This *Empus* *Ugua* *balis* with milk & oil & a little
T. Opii — Decite of Zinc with *Opii* or *Ag. Lithar.*
rect. Compr *c^a Opii*, are to be applied, & opium is
to be given internally in considerable quantity. The
regimen should not be high, but a small quantity
of wine in water may be allowed; but if suppuration
should take place, which it is our business to prevent,
a stimulant regimen is to be used; & in a case
where the pulse was full & 140 in a minute, opium & wine
reduced them in a short time to their natural state,
& the Patient recovered. Sometimes after suppuration,
extensive granulations arise from the surface of the
ulcer; in this case Decite of Zinc *Opri* *Ag. Lithar* 3℥,
will occasion the formation of new cuticle in a short
time.

In the 3rd case, where the ulcer has suffered in it

living power, sloughing will take place. At first the irritation is not so great as in the 1st kind; but remotely it is very great. In this kind of heat it is that warm sp. Serpentina is proper; it stimulates the skin, separates the sloughs, & tho' there may be some parts of the wound, where the skin is not destroyed where it may produce pain, yet on the whole it will do much good. When the sloughs have separated or begin to slough the serpentine should be discontinued.

When a Person is burnt with gunpowder, the grains will remain under the skin occasioning deformity but this may be prevented by picking them out with a needle; but if they remain long, they become partly dissolved, & cannot be extracted.

W! They agree with Mr Cooper respecting the use of serpentine.

Tumours

Receive their names from their structure. The adipose or steatomatous Tumour is improperly said to be encapsulated; it feels lobulated, & on tightening the skin over the tumour the lobes may be seen; it has an obscure fluctuation or girding, & is unattended with pain, unless when it ulcerates; it sometimes grows to an enormous size, & this more especially on the back; the growth is slow & it may be very much retarded by pressure; the most usual seat of this tumour is the back, next shoulders or thighs. Their bulk renders it necessary to remove them, & the operation is safe & easy, the vessels that supply them being usually small. If the tumour be large, part of the skin may be taken out with it; the dissection is to be carried round the tumour in the cellular

the membrane to do this more easily the tumour
should be drawn out with an hook, by which means the
cellular membrane will be stretched; if the tumour is large
the arteries should be tied if they are divided. the patient
suffers but little ~~during~~ ^{after} the operation, & it has been performed
on pregnant women without any bad consequences. If the
tumour is seated in the cellular membrane, & consists of the
growth of the acipose cells.

In the encysted tumour we may generally operate with
out apprehension. It is cellular & is situated in the cellu-
lar membrane; the communication between the cell &
others is cut off it takes on an unnatural action, & a curd
like substance is found out, It has also been called mucous
cerous, & atheromatous, from the different consistence of them
bents. When this humour suppurates, & will not heal we
must remove the cyst or cauterize the surface of it.

The encysted humour is entirely circumscribed, rising out of the surrounding parts so that it is easy to ascertain its limits; it fluctuates distinctly, & is unattended with pain, unless when disposed to suppurate; the vessels that supply it are never large. The cysts are often lined with cuticle, which produces hair; but this hair has no bulb, & is embedded in a substance resembling the macle. In operating it is not commonly necessary to cut out a portion of the skin; the tumour is to be dissected out without cutting in to it; & the vessels will generally be found to enter at the bottom.

If the humour be seated in a part, where the proximity of vessels renders it unsafe to cut it out an incision should be made into it to discharge its contents; for a few days a poultice is to be applied; & the inside of the tumour is afterwards to be covered with the

ced mixture of mercury, to get it into a granulating
state; & if there be a part which does not granulate, it may be
touch'd with lunar caustic, the sides of the cyst are to be brought
together. If the cyst be large it may be treated by injection
in the same manner as hydrocele.

Some people have a peculiar disposition to form encysted
tumours; & this disposition sometimes runs in families.

When this tumour forms on the scalp the cyst is often hard.

(nd)
Lecture 5th.

Absorbent glandular tumour. The absorbent glands some-
times become morbidly enlarg'd, tho' the person appears in
good health. At first it resembles a gland enlarg'd from
scrophula, except that it is much harder - feeling like scirrhus;
it is unmovable & is unattended with pain; & will continue to
enlarge for years before it creates any alarm; it then discharges
the discharge destroys the Patient's life. This disease occurs
most frequently in the neck, & it is best to excise it before

inflammation continues. The abscess then is nat-
 urally contain'd in a cellular membrane, which forms
 a cyst to the humour; when it suppurates the matter
 is not healthy, but resembles rice; & the cyst remains.
 When the humour has acquir'd a very large size it
 may be dangerous to remove it; it occurs in the neck,
 groin, or axilla, & great skill, cool courage, & anatomical
 knowledge are requir'd in the operation; for sometimes
 it is necessary to lay bare the coats of large arteries.
 It is best to cut close to the surface of the tumour, di-
 recting the edge of the knife as it were, into it, drawing
 the tumour out, in order to stretch the cellular mem-
 brane; we are thus able to avoid wounding any by-
 neighbouring artery; each tumour of this kind has
 a large artery passing to it. They are not of a can-
 cerous nature, & do not return.

Fungus Haematodes was described by Mr. Hunter
under the name of fungated ulcer. It begins like a
pulpy swelling, which gilds to purple like a ganglion,
or a tumour containing fluid; on opening it a little
blood only is discharg'd, & in 3 or 4 days a fungus arises.
The color of the tumour is generally a light blue, like a
dilated vein; prior to ulceration there is little pain; but
when it becomes large, & is about to ulcerate there is much
pain, which increases as the ulceration advances; but
this may depend in a great degree on its situation - for
if it can increase without being compressed, the pain is but
little. after a time the surface ulcerates, & thro' the open-
ing a brownish fungus protrudes which easily breaks
bleeds freely - & the haemorrhage is difficult to stop; the
tumour increases to a large size, & the frequent haemor-
rhage destroys the patient if the limb be not amputated.
This tumour consists of a spongy substance which is

composed of loose coagulable lymph which is very
 rare; it occurs in persons debilitated from intemperance,
 or disuse of mind; if inflammation arises in such tumours,
 a spongy sort of coagulable lymph is effused which is loose
 as not to be capable of resisting the vessels shooting into
 it, & they become preternaturally elongated, there are
 usually many cells in this tumour, which contain
 puriform blood. It has been a question among Surgeons
 whether this disease extends by absorption? if it does
 not there is another disease so resembling it that
 Mr Cooper cannot discriminate between them; after
 amputation in many cases there is no return of the disease;
 but the lungs are subject to form tubercles of the same na-
 ture; & Mr C related a case where it appeared in the
 foot, from which it was excised, but returned again several
 times; it then appeared in the knee, & the glands of the

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glands were enormously enlarged, suppurated inflammation
came on, & the Patient died. On examination the virus
glands were found enlarged & the virus was therein
by means of a spongy coagulable lymph. Other cases of
the nature have occurred & Mr. C. is of opinion that the
absorbents can convey it by imitation or absorption: it is
therefore improper to cut it out, for a supputation alone will
effectually remove it. The origin of the disease is in the
gavica, the vessels of the parts not being affected. Mr.
Cooper has once seen it healed over; this was done by
means of the following lotion: R. Melle. Melic. \mathfrak{ss}
 \mathfrak{ss} - Aqua fort. \mathfrak{ss} . It has also been removed by sloughing.
amputation must not be performed near the disease,
where in common cases we should amputate below the tumour
in this disease we should do it above.

Cutaneous Tumours. Tumours sometimes grow from the
skin, being formed by its elongation. they are of 3 kinds.

1st When the skin is large & folded, but not forming a distinct fungulous swelling, the cellular membrane not being increased. The 2^d is when both skin & cellular membrane form the tumour; it begins like a wart, but with a smooth surface. These tumours may be removed with safety; no vessels are divided, & they do not return. The 3^d is warty, & often becomes cancerous, it sometimes arises from long continued irritation; & it may remain quiet for a long time, untill circumstances make it become irritable & cancerous; for this reason no caustic should ever be applied to it. This tumour is very vascular, & therefore the incision must be made at a considerable distance from it, & also much deeper than the tumour goes; for they have roots which if left will reproduce the tumour.

Specific tumours, or exostoses, are of 2 kinds: P^{er}isternal arising from a formation of callus between the periosteum

& bone from inflammation of the joint; cartilage is ¹²⁴ found
out between them, which becomes vascular & bony, & the
cartilage is effused which also becomes bony, & thus after
a considerable time, a large tumour is formed. It may
be removed with safety: the integuments are to be cut then
& turned back from the tumour, which is then to be drawn
off at the root; the integuments are then to be brought together,
if they will not unite by adhesion they must be left to granu-
late, which they will do without exfoliation. If we cannot
get to the root of the tumour, the periosteum alone should be
taken off, & the integuments are then to be brought together,
for as the tumour grows from the periosteum, destroying
this will prevent its growth: A Surgeon cured a tumour of
this kind in this manner a short time since: he pierced it
in several places with an awl; thus exciting inflammation
& a new action, & promoting absorption at the same time,
he effected a cure.

The 2^d sort of exostosis proceeds from the cancelli of the bone,

a partial inflammation of this structure takes place, near the ligament is effused. the pressure of the callos causes an absorption of the bone, & continuing to grow it forms a large tumour all round. Its nature may be ascertain'd by passing in a probe, when the spiculi of bone may be felt. amputation is the only cure.

Serous or Hydated humours are of 3 kinds. the 1st which is most frequently found in the liver or ovarium is contain'd in a cyst, & a number of hydatids grow on its inner side, untill the cavity of the 1st is fill'd with them; they are fed by absorption, & the small ones have the same growth as the first - so that they are sometimes found like a nest of full boxes. They are now suppos'd to be living animals. The 2nd grow by a root - thus: & this is the species which grows sometimes on the placenta, & in the nose. The 3rd is found in the cellular membrane, & contains a jelly like substance & mostly occurs on the ovarium, & is mistaken for ovarian cyst.

Trapping it has excited inflammation which destroys ³⁵⁹
life of the Patient.

Bursal tumours, or ganglia, are collections of fluid
in the bursa mucosa; their most frequent seat is at
the wrist, knee & ankle. Bending the part to make the
tumour tense, we should endeavour to burst the sac by a
smart blow with a thick & heavy book; by which means they
may be removed. If we fail in breaking them Emp. Resin.
& hydragyræ with pressure will frequently remove them, or
if this also fails, a blister should be ~~applied~~ ^{applied}. If the cyst be very
thick, as is often the case when it is seated on the scapula,
~~it~~ may be removed by excision, & the constitutional indica-
tion is but little; but this operation is unnecessarily
severe, & the disease may be thus removed. Pass a curved
needle & thread thro' the tumour, leaving the thread until
inflammation comes on; when it is to be withdrawn, & the
sides of the cyst will unite. The Patient need not be re-
fined.

Haem. materni, or Maternal tumours of the skin.

A child is sometimes born with a small red mark on the skin, which in a few days begins to rise, & increases to a considerable size; the blood is driven out on pressure, & returns when pressure is discontinued. It is composed of arteries that have no elastic coat, so that they cannot resist the action of the heart, & become dilated.

If it be cut into, it bleeds much; but if an incision be made round it, the haemorrhage is inconsiderable; it sometimes ulcerates, & the granulations are of the same nature with the tumour. It is ridiculous to suppose they arise from any impression of the mind of the mother; but it is impossible to convince women of the contrary, & it is useless to attempt it. Compression will sometimes cure it. The operation must be performed as quick as possible; for the child cannot bear the loss of much blood; an incision

is to be made round & under the tumour, making half
 way around to prevent hemorrhage; but should be
 laid on the ~~part~~ ^{vein} to prevent bleeding; for none are con-
 siderable as to require the ligation.

Lecture 53 -

Poisons

Are those substances which in small ~~substances~~ ^{quantities} produce
 deleterious effects on the body; there are few of these
 substances which may not be used as medicines; & only
 one which in the smallest possible quantity is still poisonous.

Poisons are deriv'd from 4 sources: 1st animal poisons - 2nd vege-
 -table - 3rd mineral & 4th poisons which may be communica-
 ted from man to man, & are call'd morbid. Poisons are
 in 3 modes: on the nerves - on the arteries & on both
 nerves & arteries. there is a considerable difference between

The three first & the milder poisons; the action of the
 former being proportion'd to the quantity introduced; when,
 in the latter the action is the same, whatever may be the
 quantity used - as is seen in syphilis, & small pox. tho'
 we have supposed the latter to be an exception to this
 rule. For these poisons to operate there must be a predispo-
 sition to be acted on; & therefore some are affected while
 others are not; & the predisposition to be acted on is weakened
 by repetition, as is seen in the small pox - & in a Man
 who had been accustomed to destroy wasps for some years,
 the sting of this insect produced no effect; but while in a
 debilitated state from intermittent fever, the sting excited
 swelling; but the predisposition to be affected again went
 off as he regain'd his strength. Poisons produce their ef-
 fects at different periods after their application; but
 inflammation usually succeeds in from 4 to 7 Days.

Yet verruca will keep back the action of the syphilitic poi-
 son for a considerable time; the venereal small pox comes
 on after 14 or 15, but inoculated small pox & cow pox will
 appear in 8 or 9 days the small pox being rather the most;
scarlatina & measles come on in from 7 to 9 days; but miasmata
 will sometimes produce ague after a considerable
 time.

Animal poisons in England are generally unimportant.
 in the sting of a wasp, or animals of that nature the applica-
 tion of oil & opium is usually sufficient. But the bite
 of the viper is more important; it acts both on the arteries
 & nerves, usually operating by mixing with the salivary
 in the cellular membrane, exciting inflammation which
 appears like gangrene; the same appearance arises from
 the bite of the rattle snake. Palsy also sometimes follows
 the bite of the viper. a string should be bound tightly
 round the part, above the wound between it & the heart.

to prevent a pain from extending in the cellular membrane; the more excision of the part will not prevent the effect of the poison, tho' it is very proper in conjunction with the string, fomentations & poultices & the volatile alkali internally, have been much recommended, but they are not to be depended on without also shutting up the pain. Hydrophobia. Of this disease Mr. Cooper has seen 3 cases; its first action appears to be that of exciting constitutional fever; chilliness, heat & loss of appetite coming on before the difficulty of swallowing; it is not the mere dread of liquids, tho' that is most predominant; but there is a fear of swallowing altogether; spasms come on as soon as the Patient sees the liquid; but as soon as it touches the lips, it is thrown away & convulsions come on; & the talking of it will sometimes produce the same facts; there is excessive irritability of every part, as

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well as the throat, so that sometimes even a strong
light or a fly settling on his body will produce convul-
sions. The Patient has no disposition to injure himself;
the idea be not given him tho' he is easily provoked and
then attempt to defend himself, yet he will not injure him.

The diaphragm often contracts & makes deep inspirations. It
has made the vulgar imagine that they bark like dogs.
They generally die convulsed. On dissection an exten-
sive inflammation is found on the pharynx, oesophagus
& stomach & generally on its posterior part. These appear-
ances are found in man & other animals; but in the sheep it is
the 1st or digestive stomach that is inflamed.

Mr. Cooper has failed in conveying this disease by inoculation
tho' Mr. Lawrence succeeded in one instance. The effect is
usually observable in from 4 to 6 weeks after the bite; tho' it
has taken place an year afterwards. It is doubtful whether
this disease can take place spontaneously, & what has been

supposed to be such, appears to be rather inflammation of
 the oropharynx; for the hydrophobic poison is of a specific
 nature. Dogs will retain their natural propensities under
 the influence of hydrophobia; & will masticate food & sip
 water, but without swallowing either; they are also con-
 tinually tearing every thing within their reach.

There is only one remedy to be depended on in this disease, &
 that is excision of the part; after which calomel may be
 applied; for it is not safe to trust to the caustic
 alone. The part may be cut out at any time before the ap-
 pearance of the disease; & to do this more effectually a
 short probe should be passed down where the tooth passed
 & the incision is to be carried below it.

Vegetable poisons generally all produce the same effec-
 ts, pain in the head, giddiness, loss of sight & sickness; in
 that they act on the nervous system, producing symptoms of

affection of the brain. Opium produces these effects, ¹¹¹ but
has little of the medical virtues that have been attrib-
uted to it; & has no effect whatever on cancer its only virtue
is that of lessening irritability and is therefore of great
use in irritable sores & in irritable bladder. Digitalis
given to any considerable extent first produces dimpling,
which generally wears off after a time. ~~It also produces~~
~~rapidity~~. When it nauseates the stomach it lessens the action
of the arteries, & increases that of the absorbents. Tobacco
lowers the action of the whole system, & therefore is improper to be used
in resuscitation of drown'd persons, tho' it has been recommended by
the humane society; for it will prevent resuscitation from tak-
-ing place. The express'd juice or oil applied to a sore
surface, has occasion'd death. The operation of opium is
different from that of other vegetable poisons, by preventing inflamma-
-tion; it has been a question whether it be stimu-
-lant or sedative? it first increases the quantity of the secretions,

the same, ~~but~~ extremely hot, the pulse is urgent & laborious, their strength is increased, it is therefore a slow death. Under the influence of a large quantity the Patient would rather die quietly, than be roused into existence. It is best to give sulphat of Zinc to evacuate the stomach as quick as possible; & then to keep him in exercise.

Mineral poisons act by exciting inflammation of the stomach. Sublimate & arsenic are the substances usually employ'd as poisons, the former causes immediate vomiting, & soon after by sympathy, it excites burning, there is excessive pain, great thirst, heat in the throat, & the respiration is commonly affected. On dissection the stomach is found uniformly inflamed, & the oesophagus, pharynx & duodenum also partake of the inflammation. To ascertain whether a Person has been poisoned by sublimate, which is of great importance in a court of justice collect all the

the inflammation proceeds, pour water on this, & filter the sublimate, & then filter it; this filtered fluid is to be evaporated, & a powder will be found at the bottom, mix a part of this with charcoal, & expose it to the flame of a lamp or candle; when running mercury will be produced; put the remainder of the powder on mix over the flame, & it will rise in a white cloud.

Arsenic produces spots of inflammation in the stomach; for being soluble with difficulty it acts only where the powder falls. It acts both on the nerves and arteries, & kills in a very few hours.

The remedy for sublimated is, to introduce an alkali in solution, into the stomach - such as niter, soda, or a solution of soap in water, to decompose the poison; broth is then to be taken to restore the natural mucus to the stomach.

When arsenic is the poison employ'd Sagar's salt is has been recommended, but little dependence is to be placed

on it; the following is the formula recommended:

R. *Hyposulphuris* ʒj

ʒj *potiss* in ʒj to be taken every 10 minutes.

The arsenic may be found in the stomach like a white powder; placed between metallic plates & exposed to flame it emits a smell like garlic, & silvers the plates.

Sichuanas is an American vegetable poison, resembling the Ext. Cicuta; a ^{small quantity} ~~bit~~ hardly visible produces death in a few minutes; its effects are, paralysis of the voluntary & respiratory muscles, & slight convulsions. He saw its effects on a rabbit, ~~which~~ the leg of which was punctured with a lancet tipped with this poison, its vitality is not weakened by time.

Adieu!

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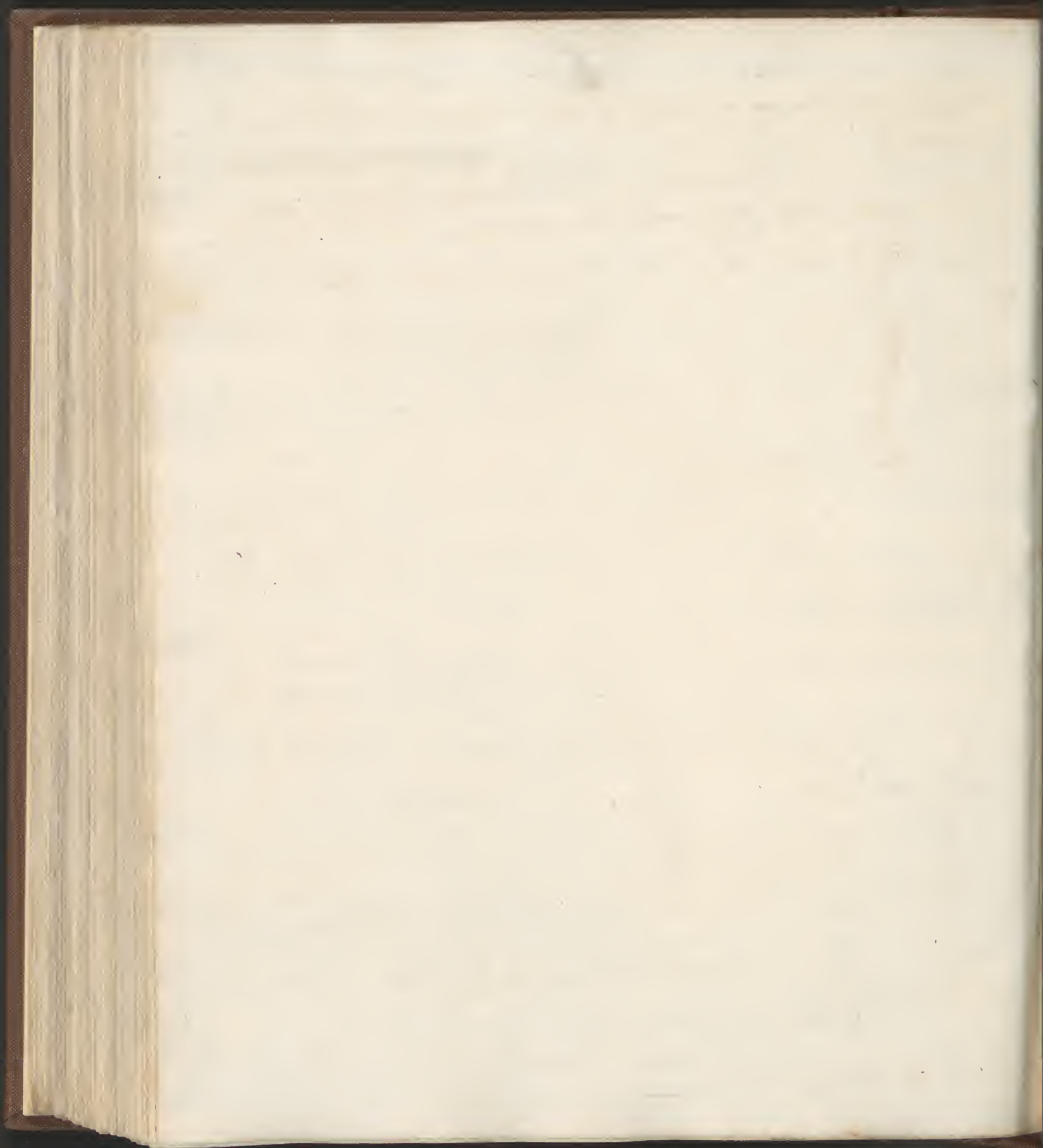
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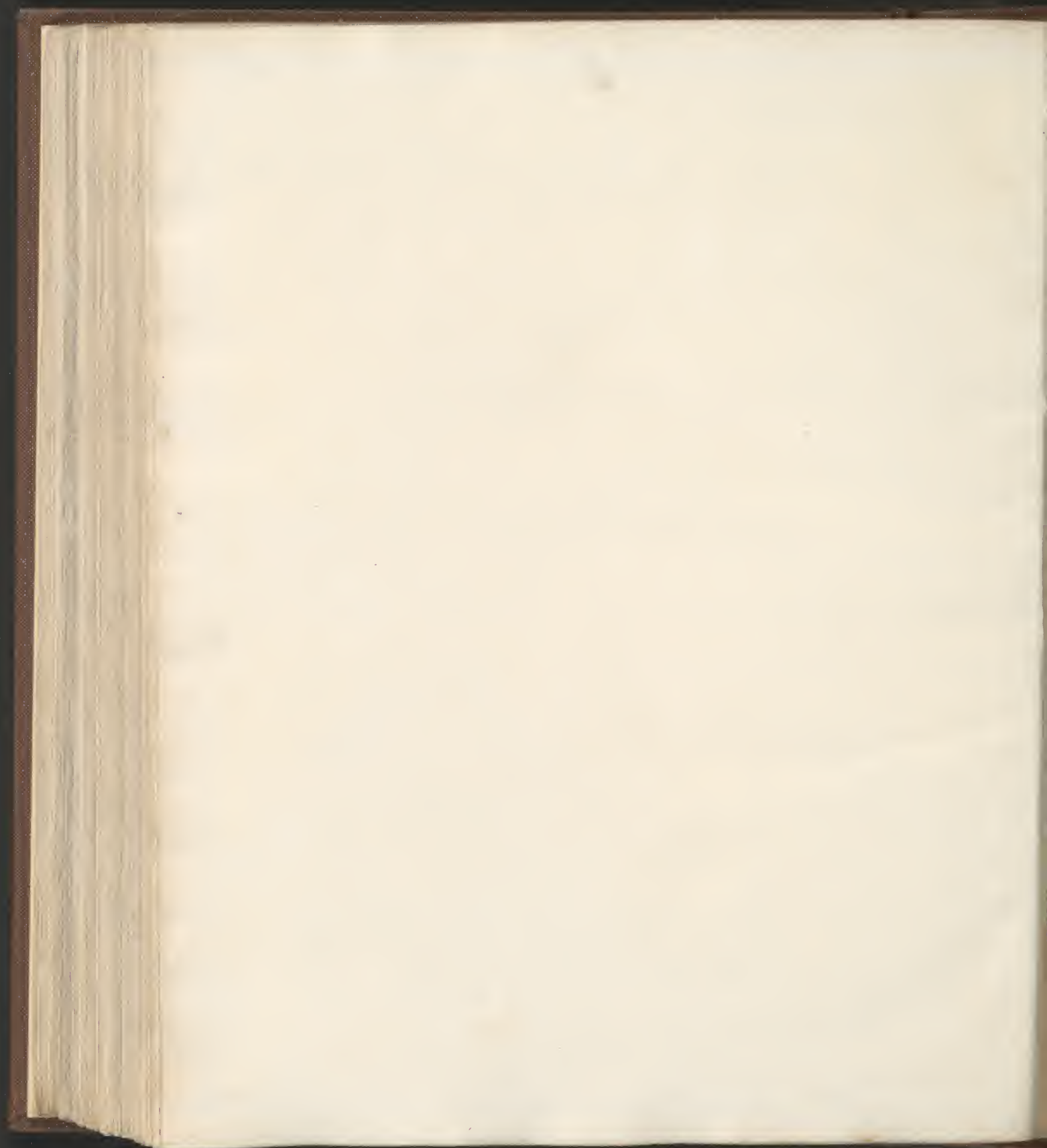
The first thing I noticed when I stepped out of the car
was a warm, humid breeze that felt like a blanket.
The air was thick with the scent of tropical flowers and
the distant hum of traffic. I took a deep breath, savoring the
feeling of being in a new place. The sun was shining brightly,
and the colors of the buildings and the people around me were
vibrant and alive. I felt a sense of excitement and
curiosity. The language was different, but the warmth of the
people and the beauty of the surroundings made me feel
at home. I was in a new world, and I was ready to
explore it.

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at home. I was in a new world, and I was ready to
explore it.

For a long time I have been thinking of writing you
but have been so busy that I could not find time
to do so. I am now at home and I hope to be able
to write you more often. I am well and hope you
are the same. I am sure you are. I am sure you
are. I am sure you are. I am sure you are.



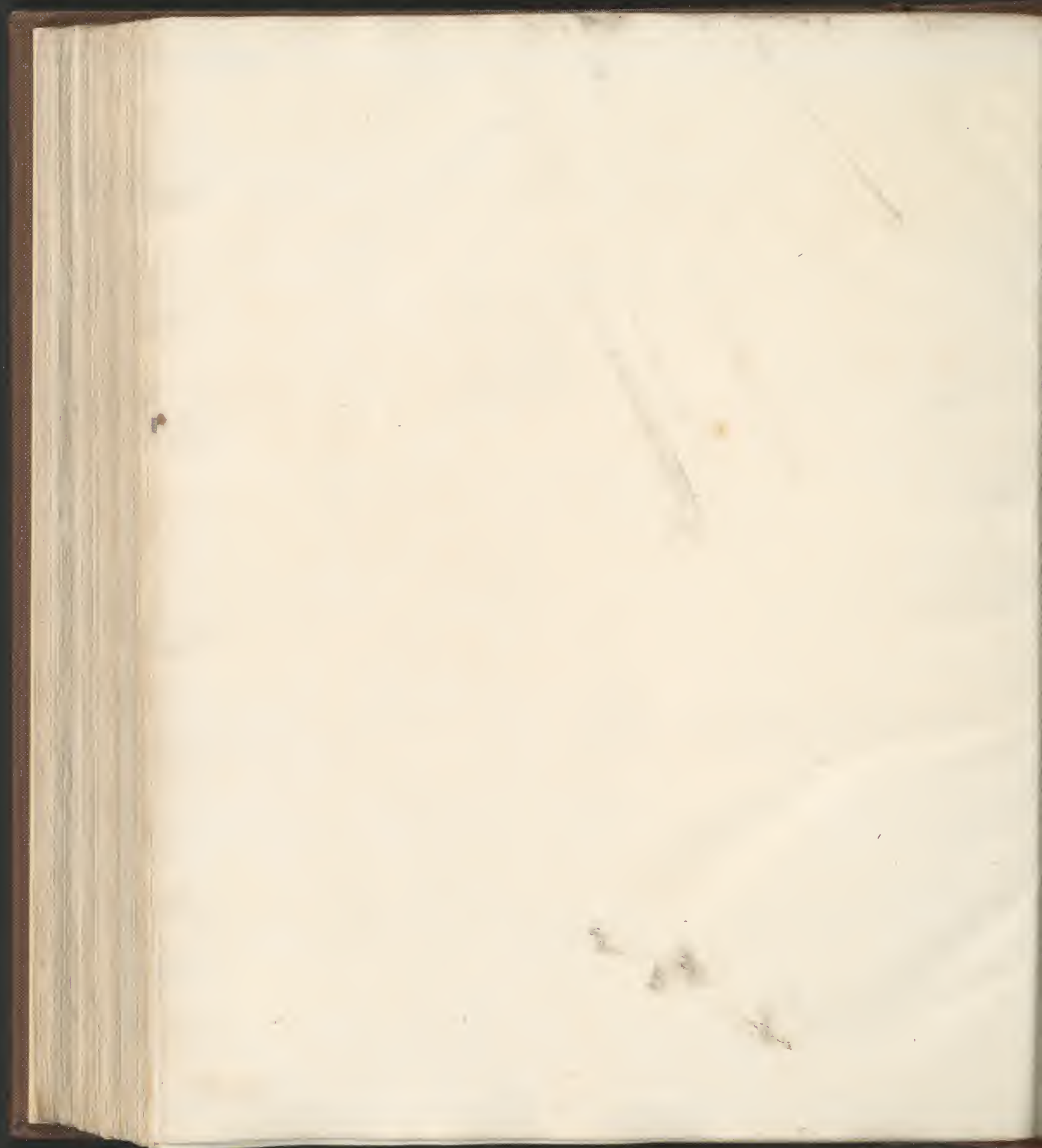
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& the common expression "acting out" are really, as I believe,
 a sort of "acting in" - in the sense of the old
 phrase "the actor will himself". In drama it is
 "acting in" the sense of "acting out" when the actor does
 not, during the performance, his usual personality and
 assumes that of the play.

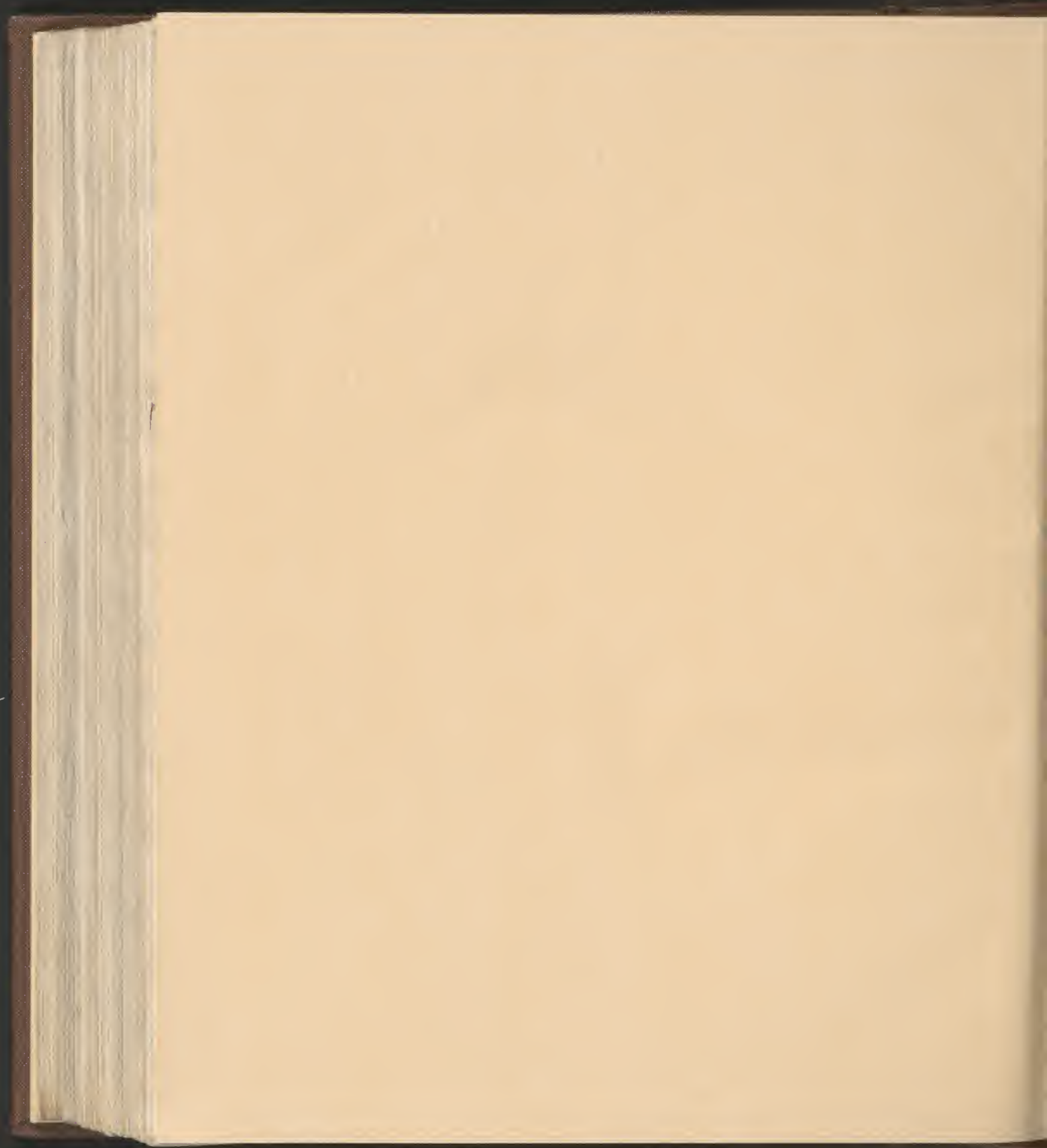
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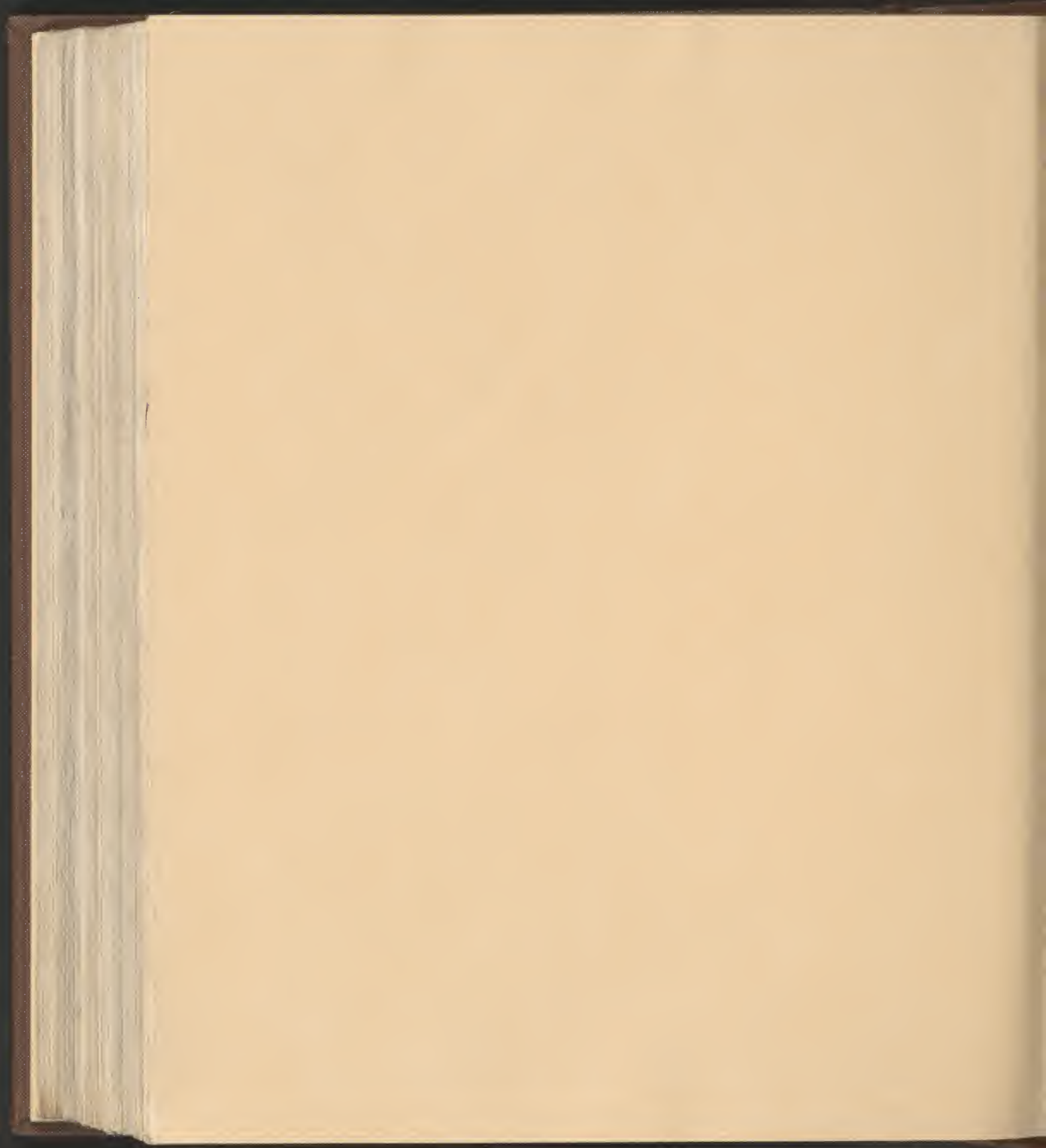
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Surgery. Cooper.
National Library of Medicine
Bethesda, MD

Condition On Receipt: The half leather and decorated paper binding was extremely dirty, worn, abraded and deteriorated, particularly at the corners, edges, endcaps and joints. The joints and internal hinges were partially broken. The sewing was broken in places, and several of the pages were detached from the text block. The pages were torn, dirty, discolored, acidic and weak. The manuscript ink present was acidic and varied in intensity.

Treatment: The volume was collated and disbound. The inks were tested for solubility. The head, tail and pages were dry cleaned and washed and then buffered (deacidified) with magnesium bicarbonate solution. Tears were mended and folds guarded where necessary with Japanese paper and rice starch paste. The volume was sewn on linen tapes with linen thread. Windsor handmade paper ends with a linen hinge were attached. The volume was case bound in full cloth. Title information and lines were stamped in gold foil onto the spine.

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